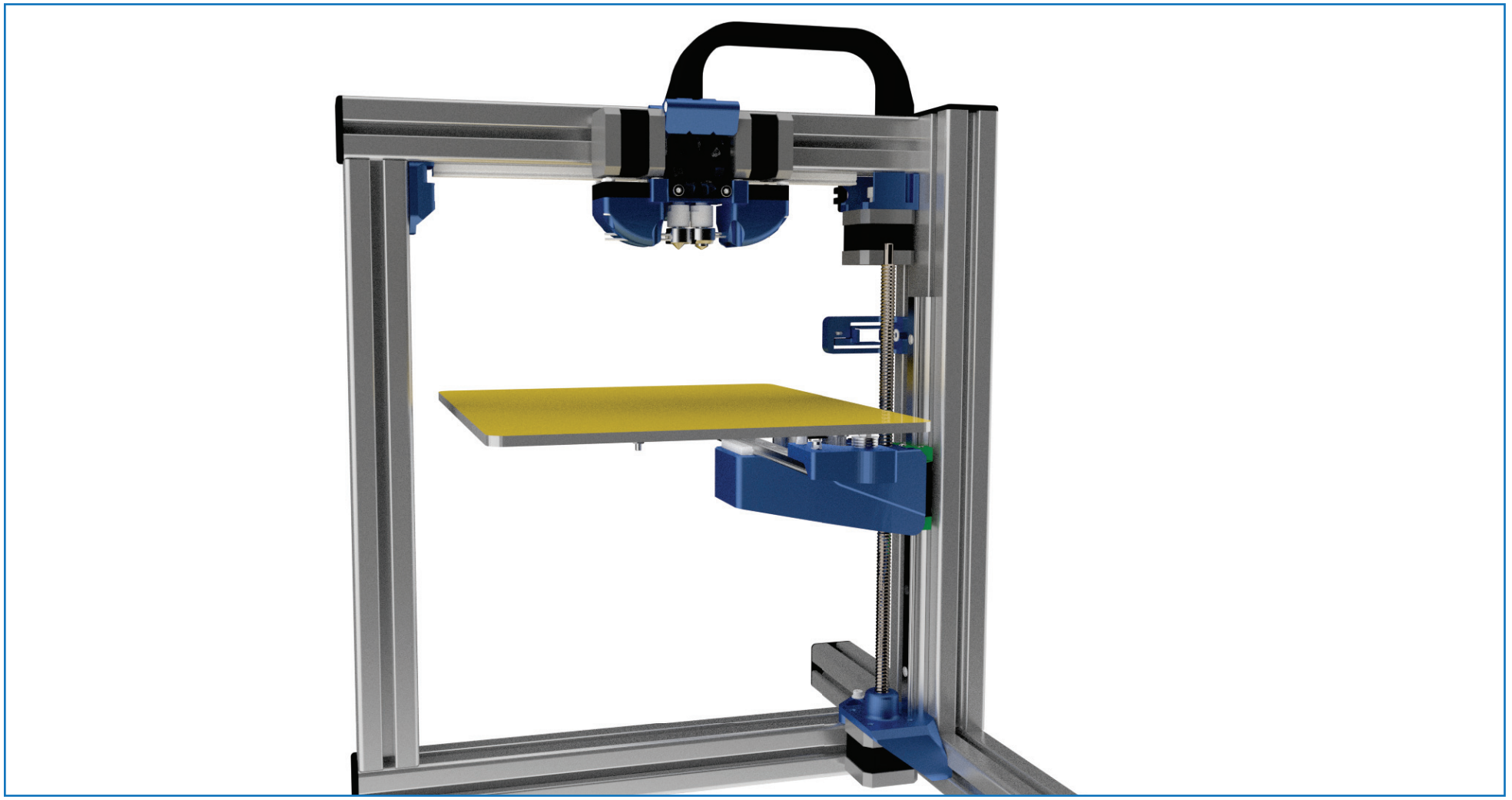
Assembly Manual FELIX 3.0



FELIX printers

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INTRODUCTION

Dear Customer,

First of all thank you for choosing FELIXprinters!

We advise you to follow this manual as carefully, to get your FELIXprinter up and running as fast as possible.
When things are unclear or if you have any remarks, please don't hesitate to contact us at support@FELIXprinters.com.
It is better to ask/read twice than to wait a week for new parts.
Another great source of knowledge and information is our user Forum.
It is a nice place to share information and experiences.
So we definately recommend to get a forum account at www.felixprinters.com/forum

Before starting to build the kit it is recommended to check if all parts are present by comparing it witht he bill of materials at the appendix of this document.

Have fun building!

Kind regards,

Felixprinters team.

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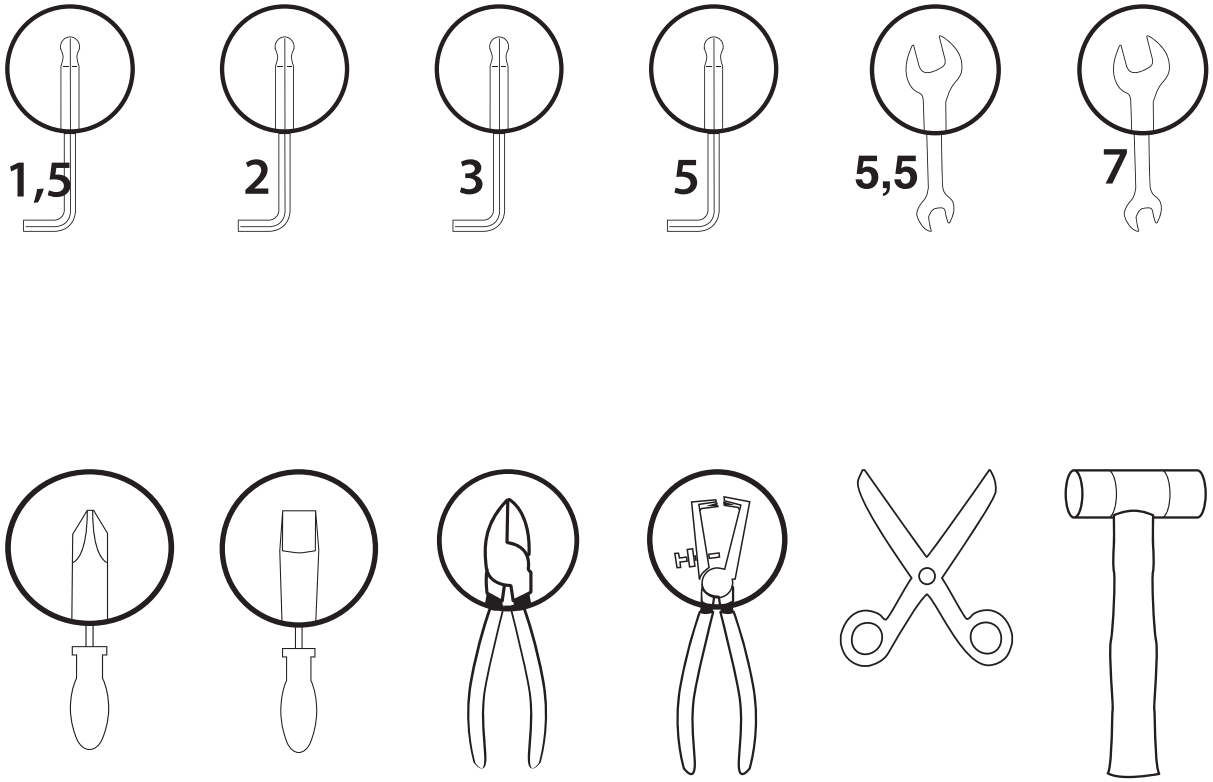
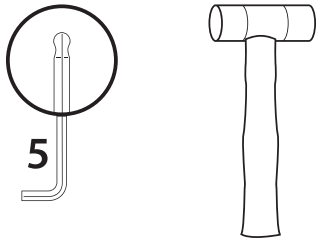
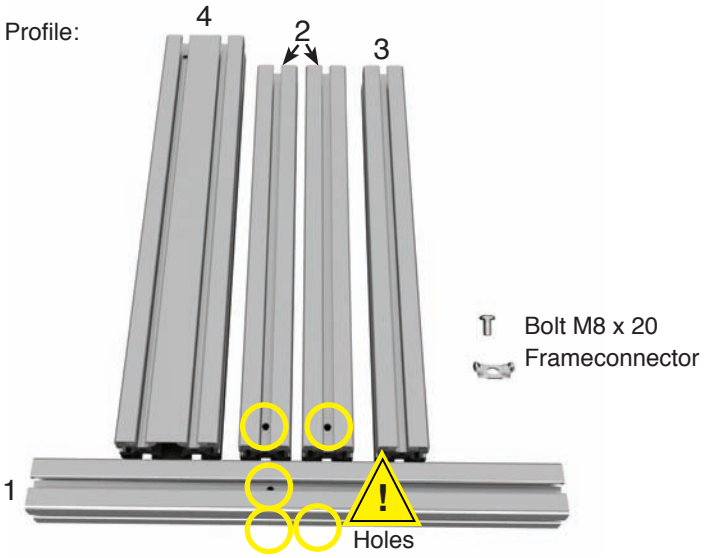
Required tools:



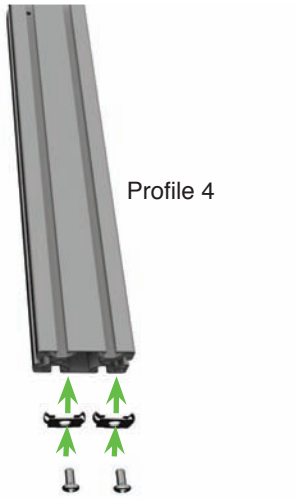
Tools:





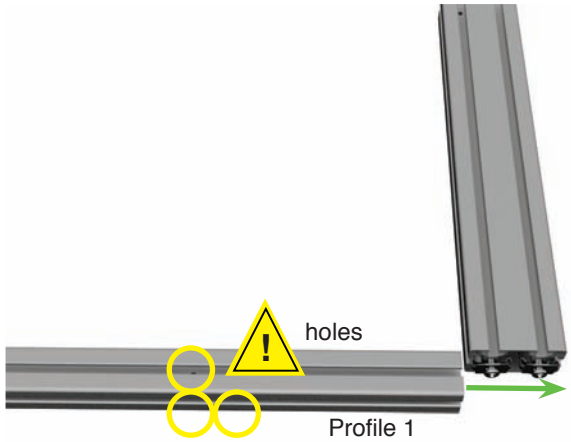
1

2x Bolt M8 x 20
2x Frameconnector
profile 4



2

2x Bolt M8 x 20
2x Frameconnector
profile 1



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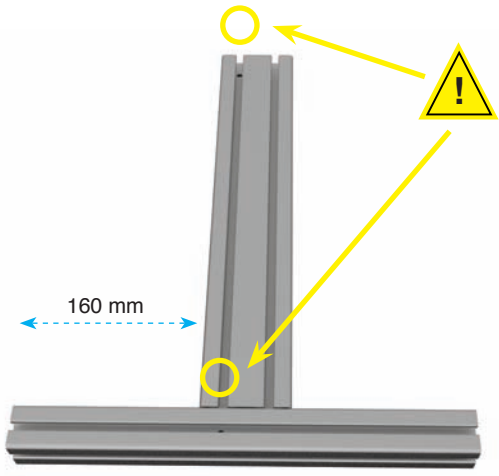

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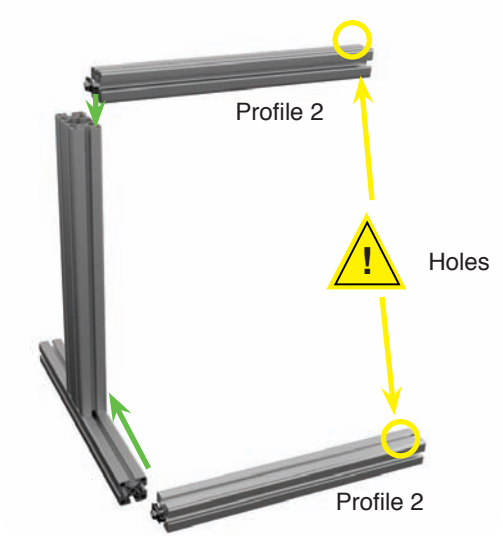
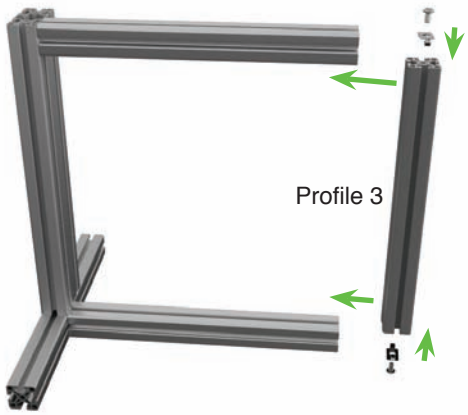
2x Bolt M8 x 20
2x Frameconnector
2x profile 2



5

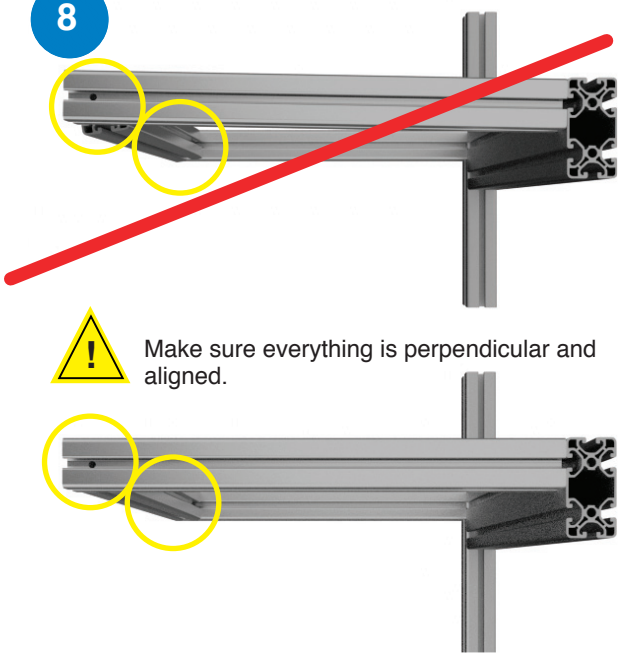
6

2x Bolt M8 x 20
2x Frameconnector
1x profile 3



7

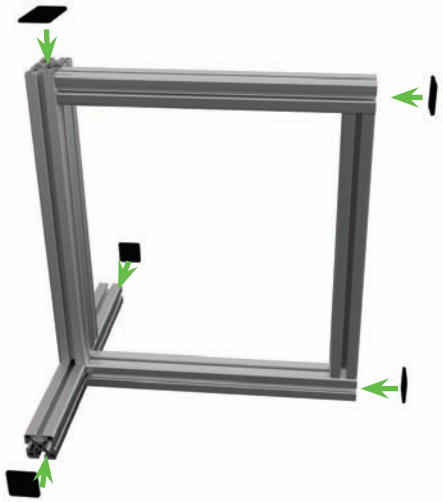
8



Make sure everything is perpendicular and aligned.

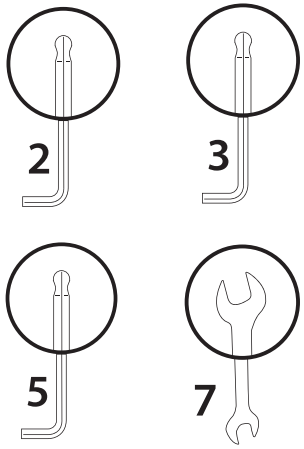
9

4x End cap square
1x End cap rectangle

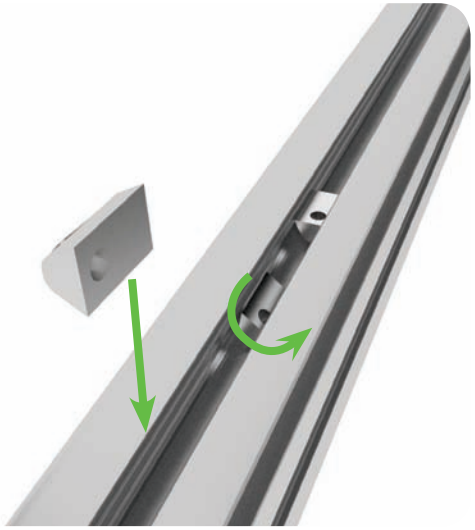


When all beams are properly aligned, it's time to fasten the bolts tightly. The frame is now finished.

Tools:



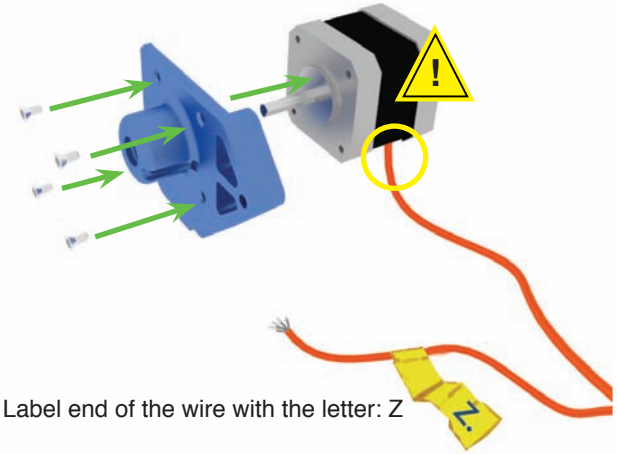
Example mounting T-slots:



10

4x CSK bolt M3x8
1x Motor
1x Z-axle motor bracket

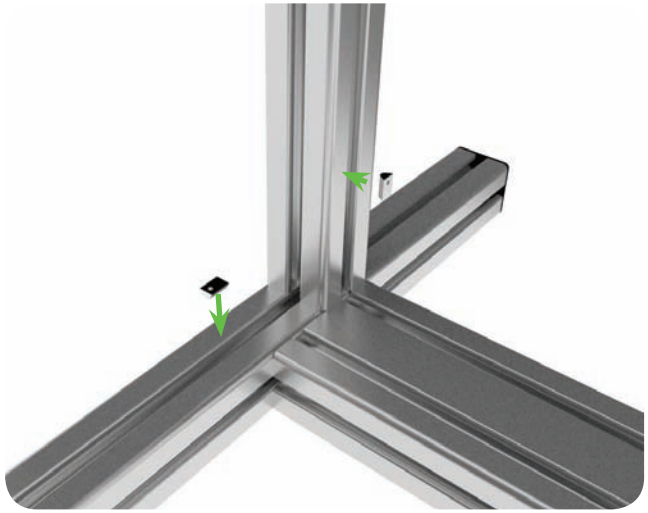
Cable oriëntation



Label end of the wire with the letter: Z

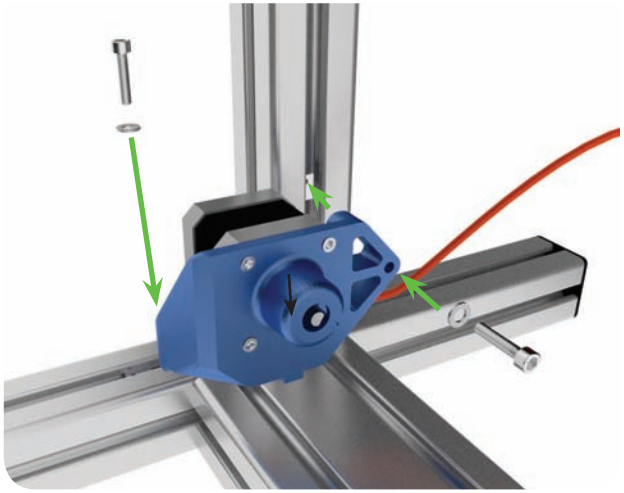
11

2x M4 T-slot



12

2x Bolt M4x20
2x Small washer M4



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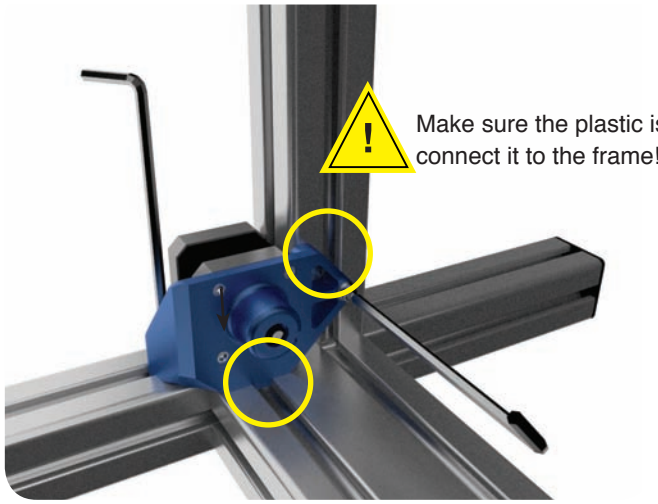
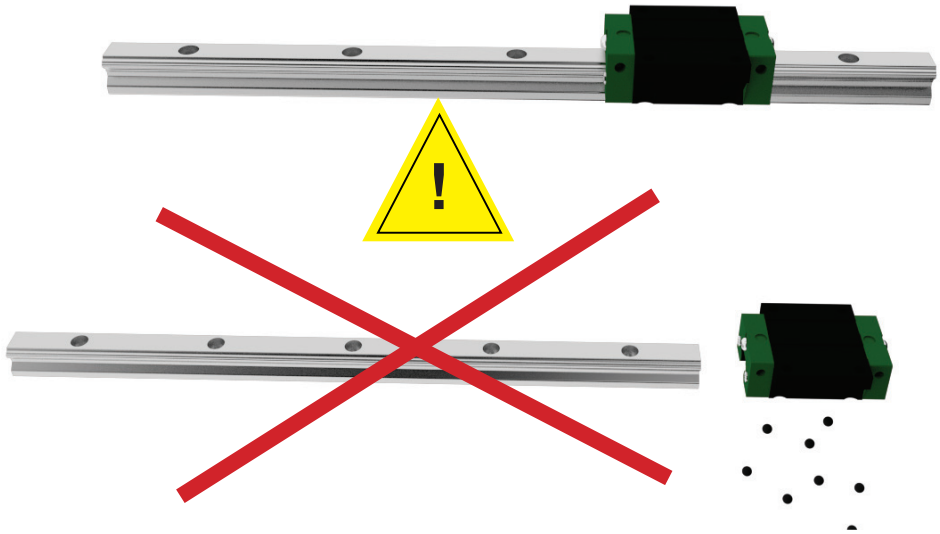
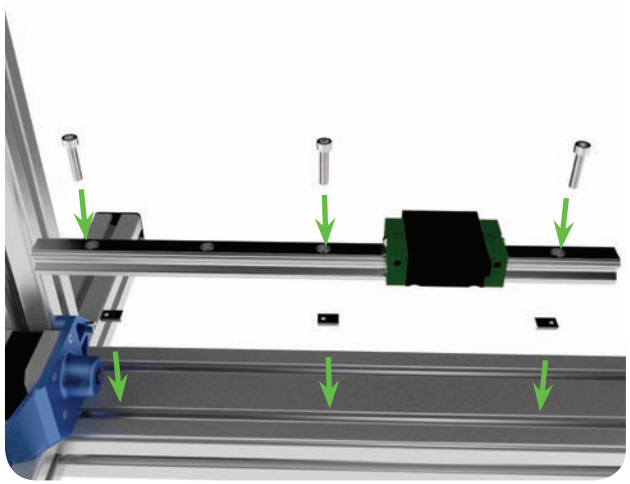




Don’t let the cart run off the rail!!

14

3x M4 T-slot
1x Z-axle rail
3x Bolt M4x20



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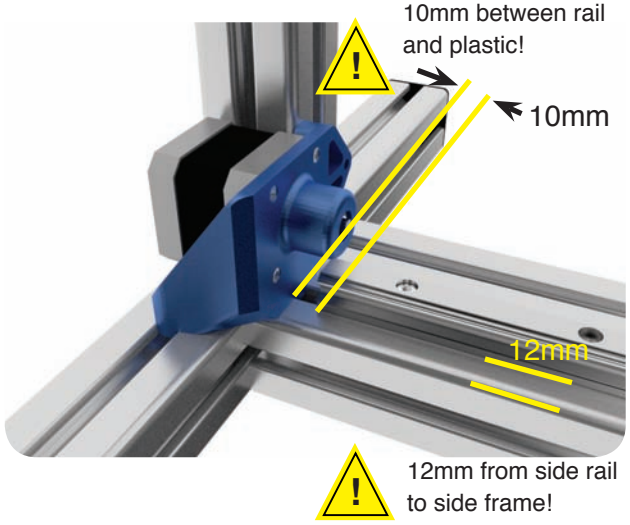


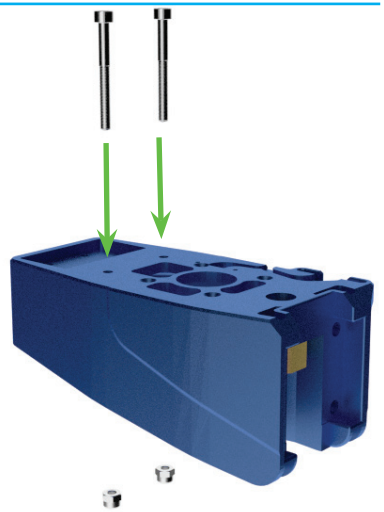
16

1x Z-axle carriër
1x Copper Nut for spindel

17

2x Bolt M4x40

2x Locknut M4



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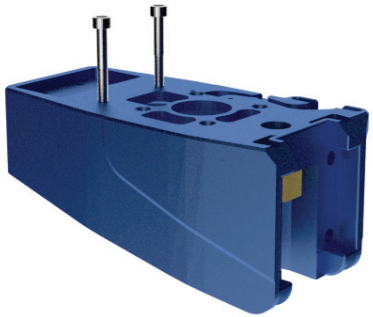
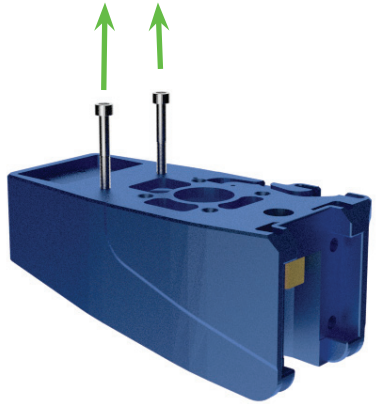


Pull the Lochnuts in the plastic solid by tightening the bolts

19



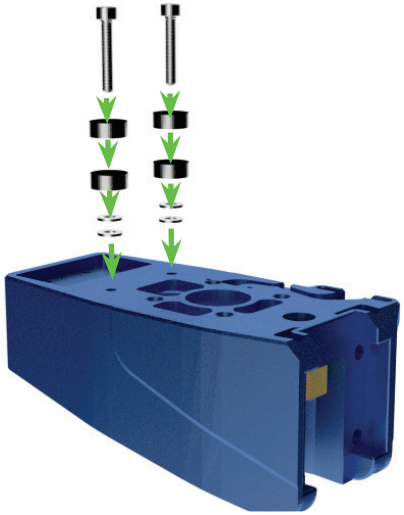
Remove the bolts M4x40

20

2x Bolt M4x25

4x Bearing

4x Small washer M4



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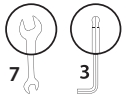
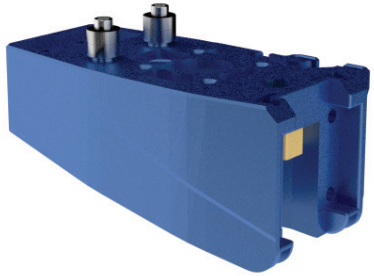
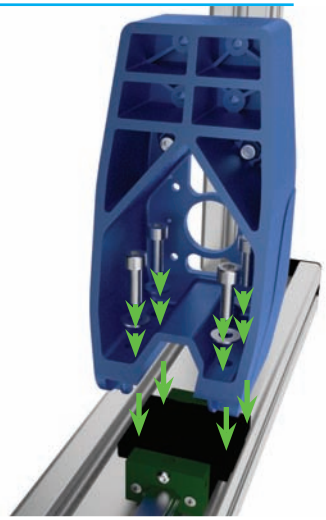




22

4x Bolt M5x16

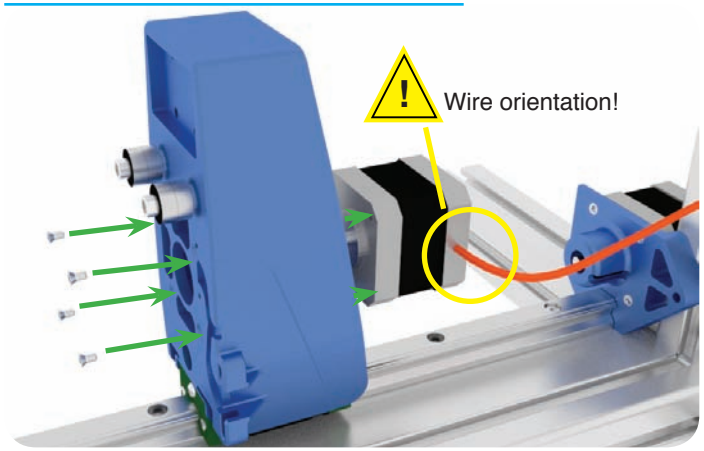
4x Small washer M5



23

24

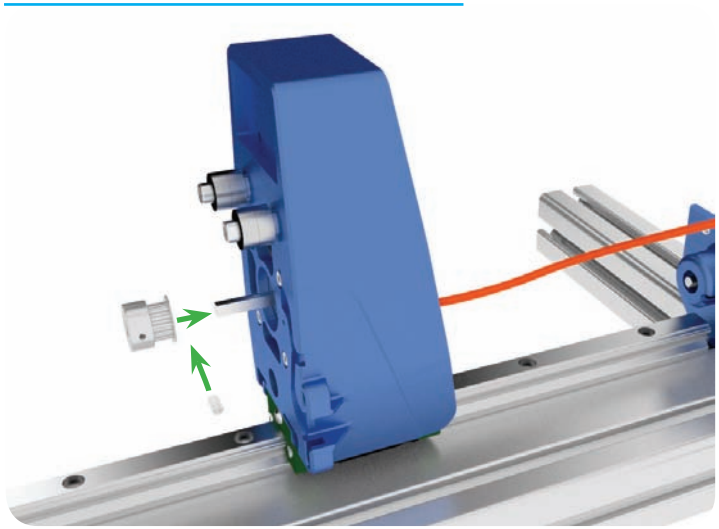
4x CSK bolt M3x8
1x Motor



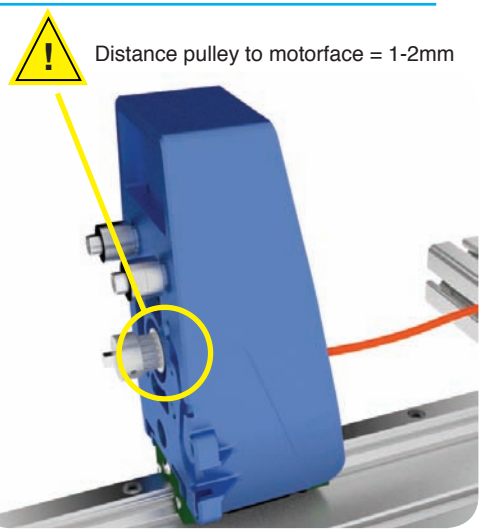
Label end of the wire with the letter: Y

25

1x pulley
1x Set screw M3x4

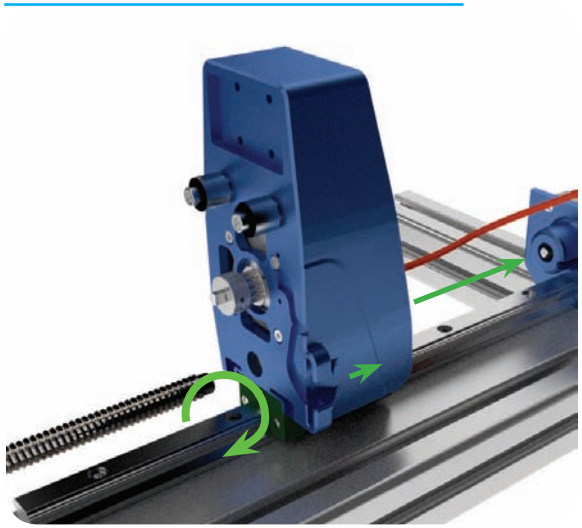


26



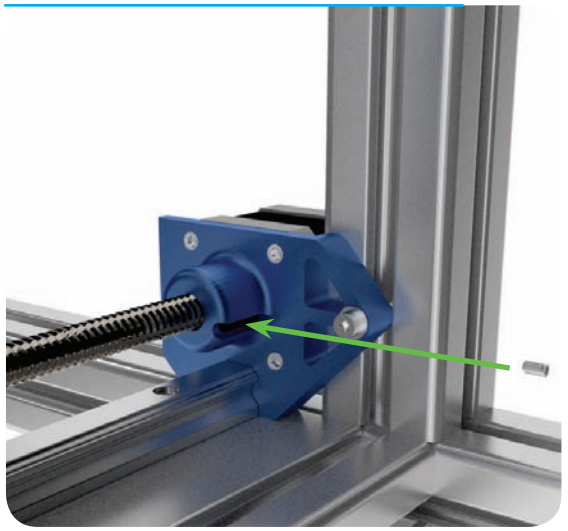
27

1x Spindle



28

1x Set screw M3x4



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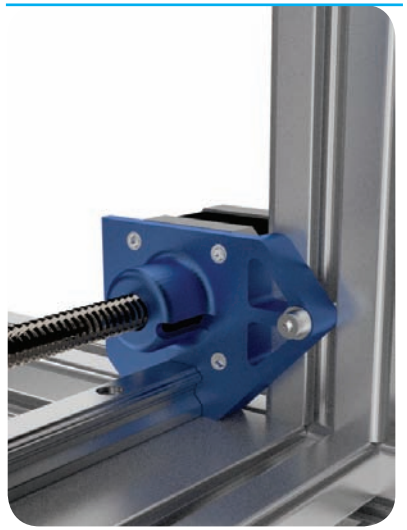
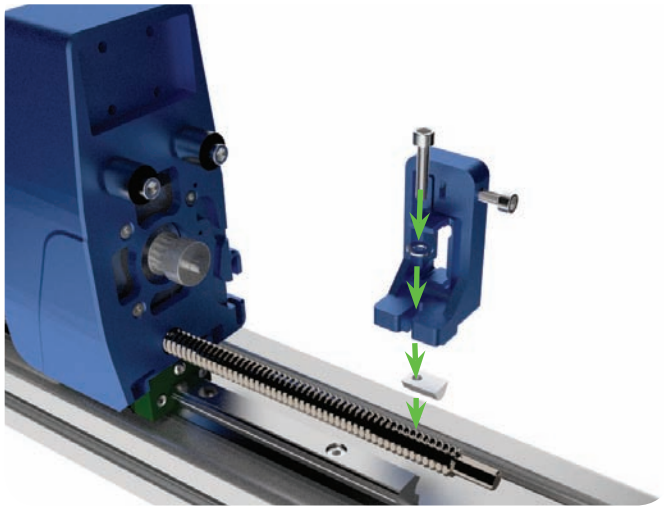


30

1x Bolt M4x20
1x Small nut M4

31

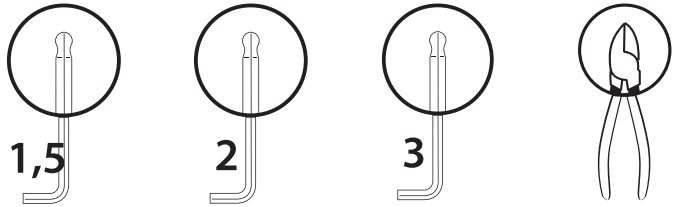
1x Bolt M4x20
1x Small washer M4
1x M4 t-slot



32

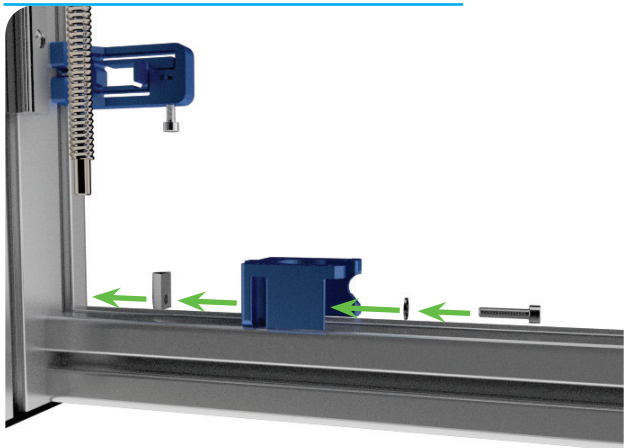
The Z-axle is finished.

Tools:



33

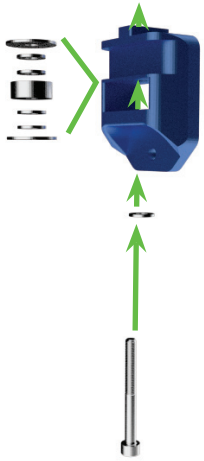
1x Bolt M4x16
1x Small washer M4
1x X-axle motor bracket
1x T-slot M4



34

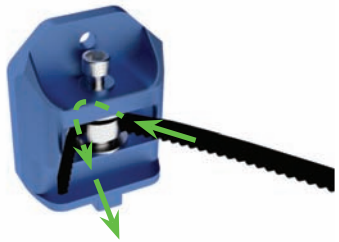
35

1x Bolt M4x40
5x Small washer M4
1x X-axle belt mount part
2x Large washer M4
1x Bearing



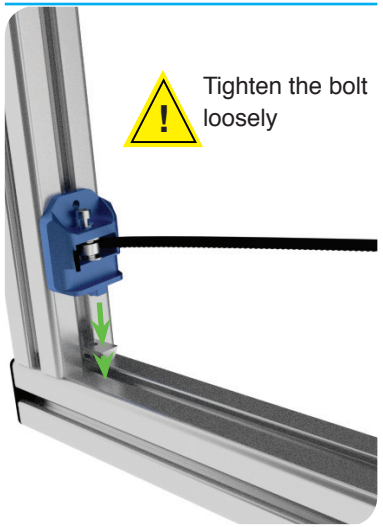
36

Belt



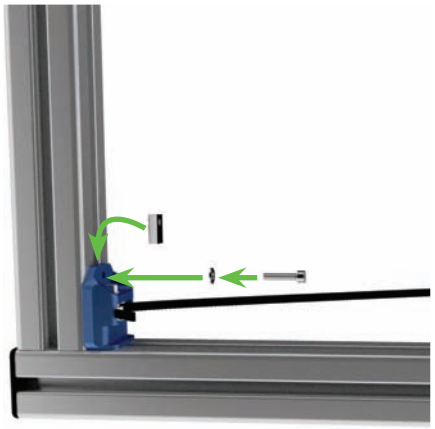
37

1x T-slot M4



38

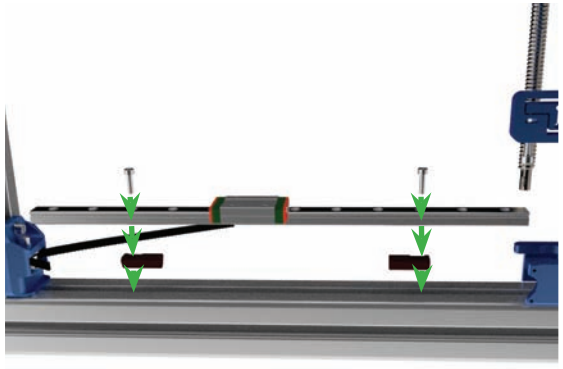
1x Bolt M4x16
1x Small washer M4
1x T-slot M4



Make sure the plasticgood
connect it to the frame!

39

2x Bolt M3x12
1x Hiwin rail
2x T-slot M3 (black)



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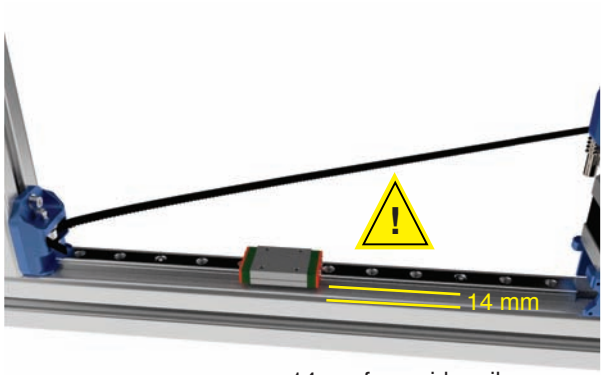
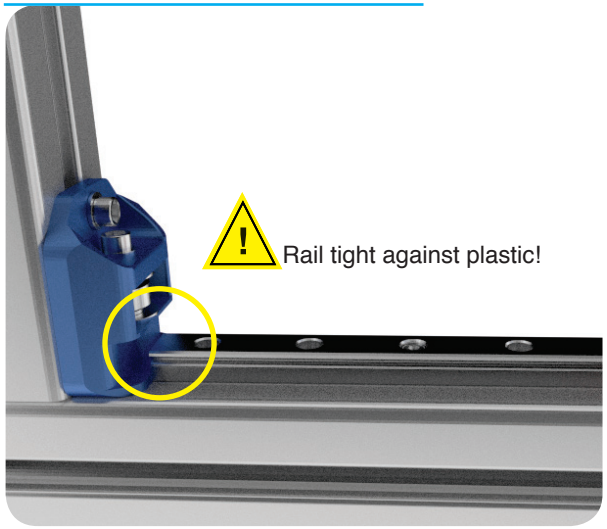


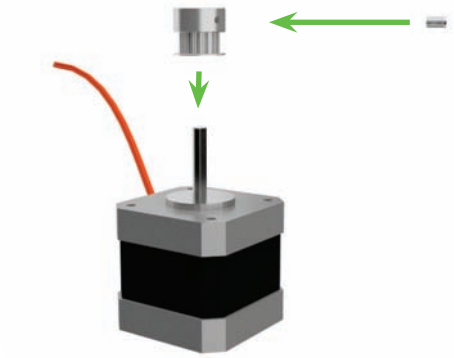
14mm from side rail
to side frame!

Detail of 40



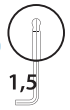
41

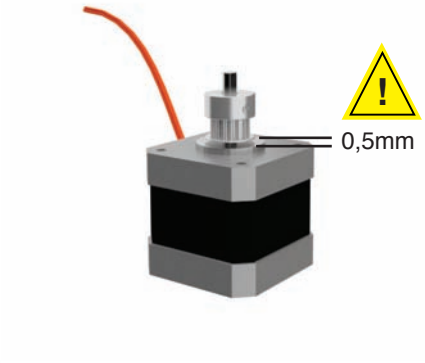
1x pulley
1x Set screw M3x4



Label the end of the cable: X

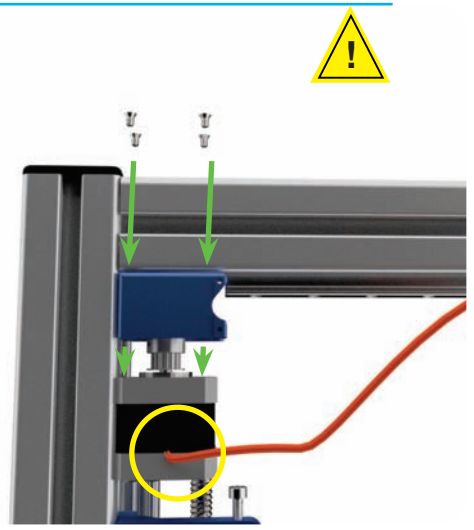
42



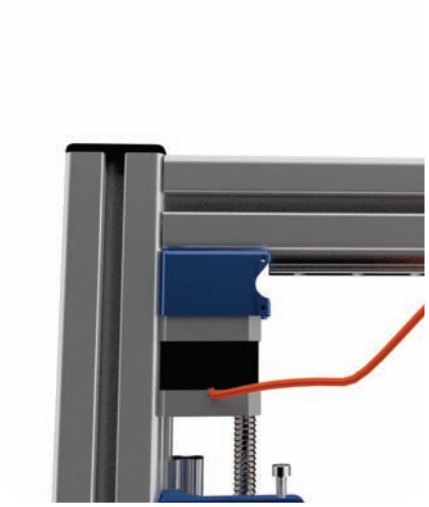


43

4x CSK bolt M3x8

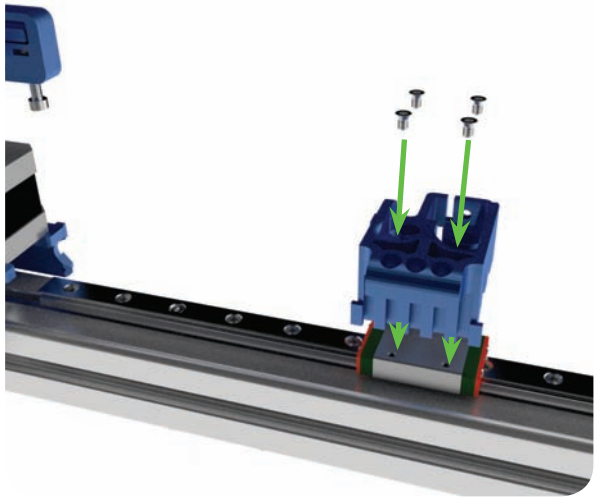


44 2



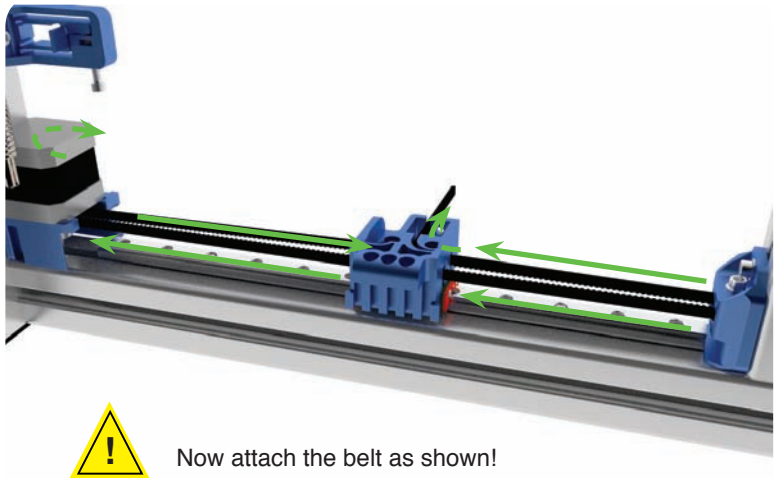
45

1x Extruder base
4x CSK M3x6



46 2

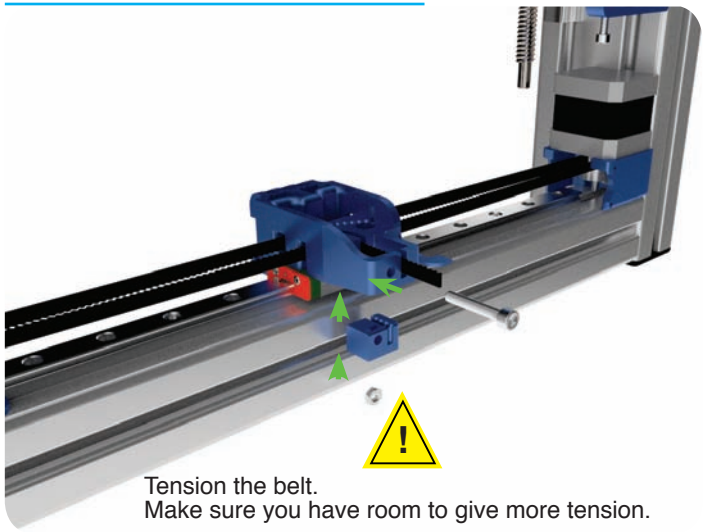
47



Now attach the belt as shown!

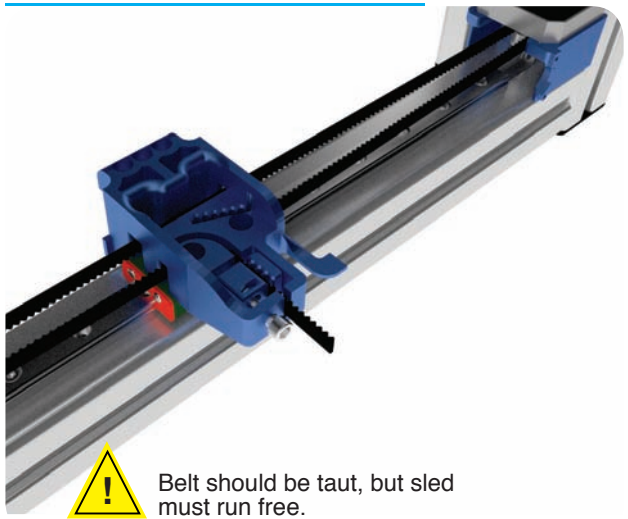
48

1x Belt bracket
1x Thin nut M4
1x Bolt M4x25



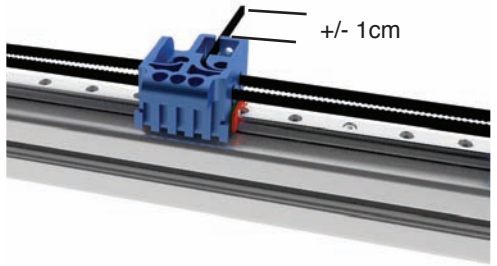
Tension the belt.
Make sure you have room to give more tension.

49 3



Belt should be taut, but sled must run free.

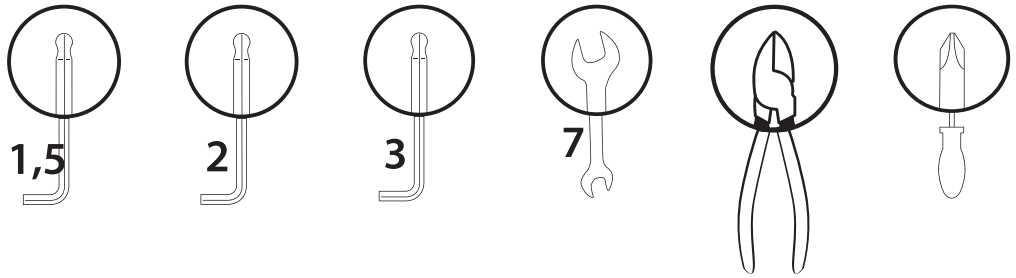
50



The X-axle is finished.

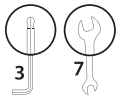
RED = OPTIONAL Dual extruder

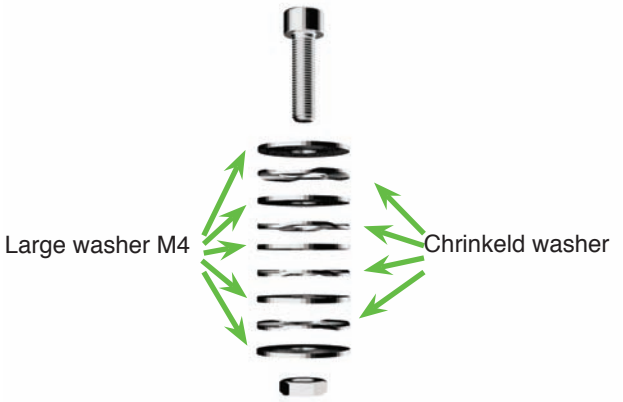
Tools:



51

1x Bolt M4x12
5x Large washer M4
4x Chrinkled washer
1x Thin nut M4

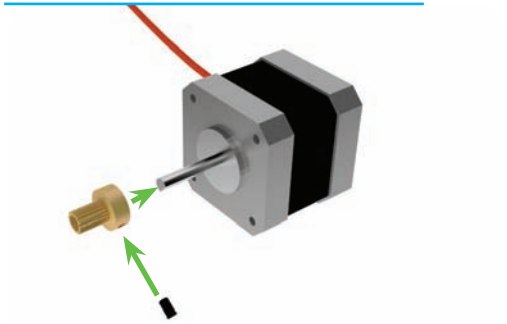




2x For dual-head

52

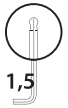
1x Extruder wheel
1x Set-screw M3x4

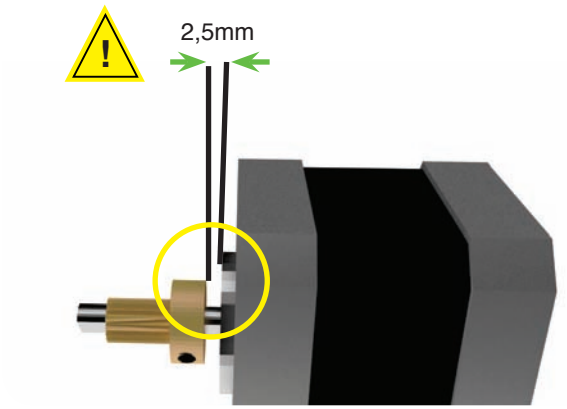


Label end of the wire: Ext 0

2x For dual-head
Label end of the 2e motorwire: Ext 1

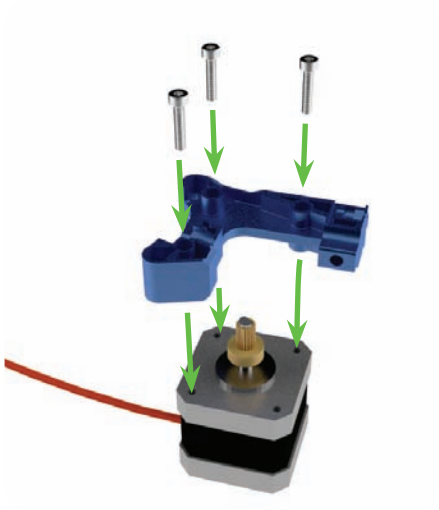
53





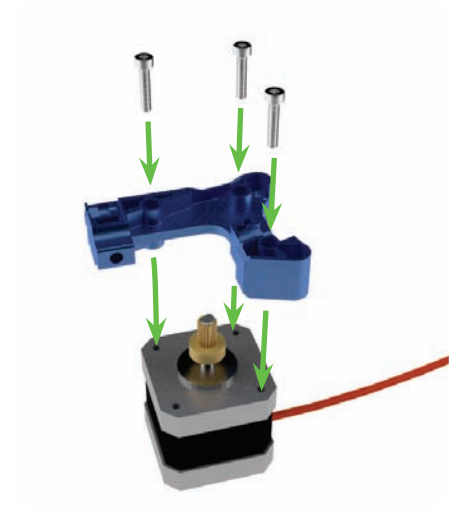
2x For dual-head

54 3x Bolt M3x16

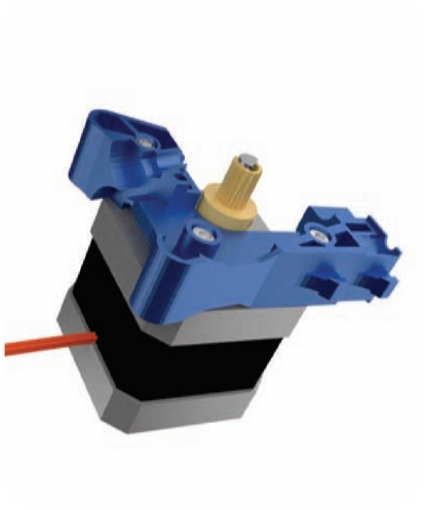


55 2

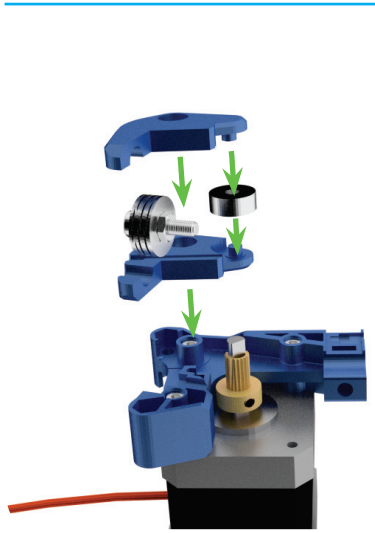
54a 3x Bolt M3x16



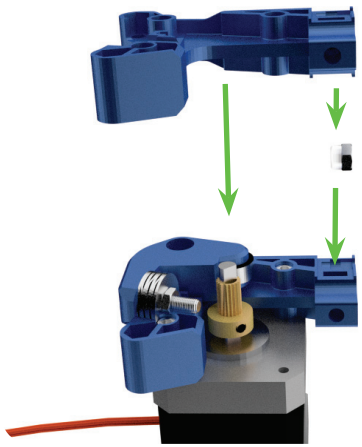
55a 2



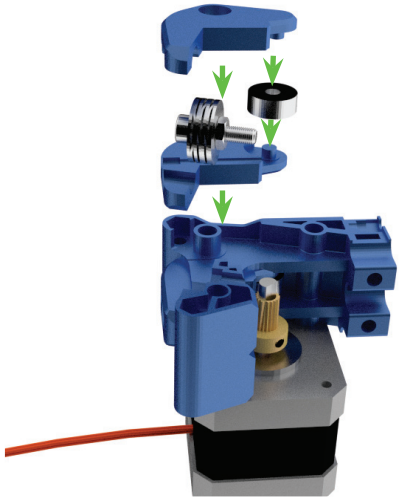
56 1x Bearing



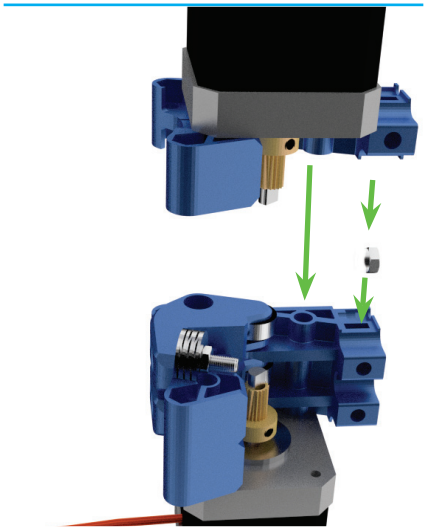
57 1x Thin nut M4



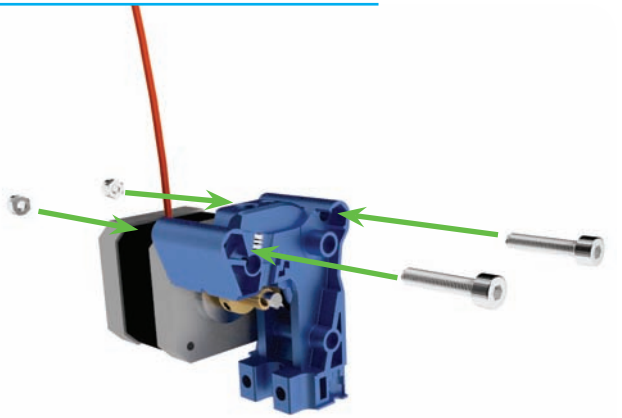
57a 1x Bearing



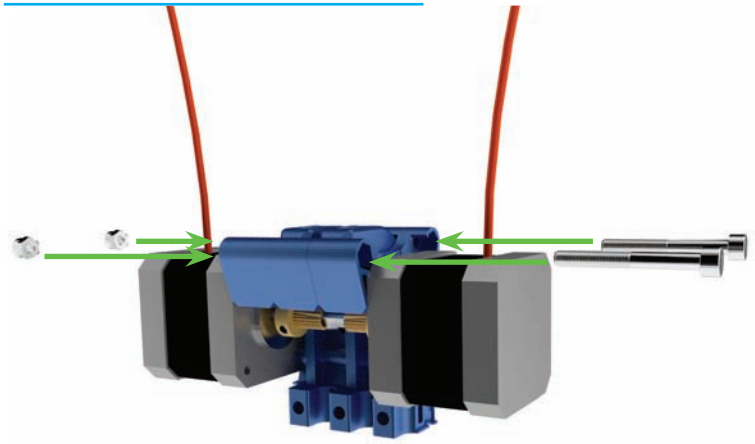
57b 1x Thin nut M4



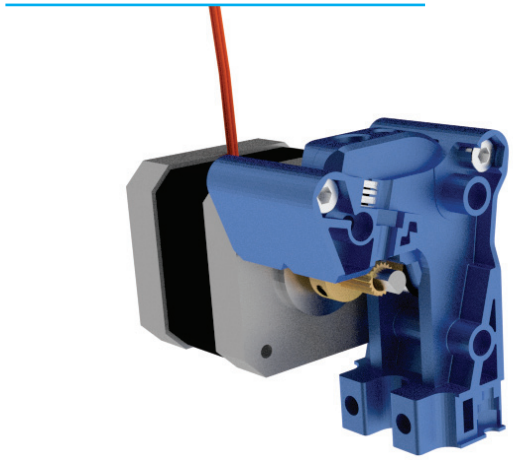
58 2x Selflocking nut M4
2x Bolt M4x25



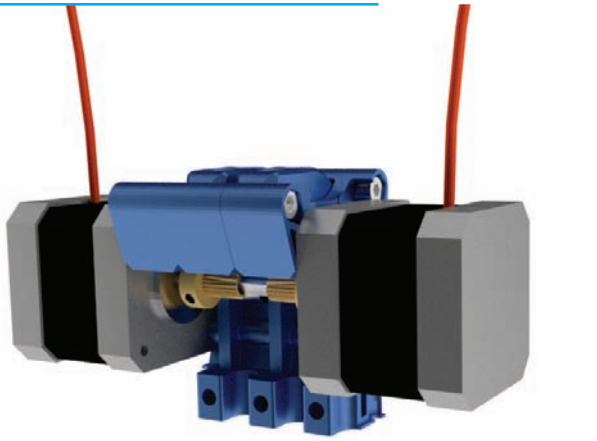
58ª 2x Selflocking nut M4
2x Bolt M4x40



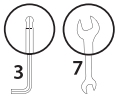
59

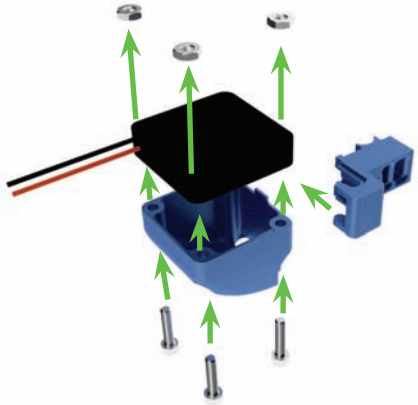


59ª



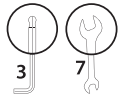
60 3x Thin nut M4
3x Bolt M4x20

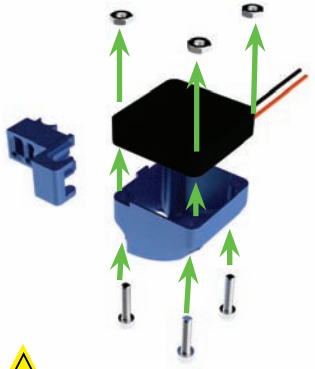




Make sure the sticker from the fan is on the bottom.
The fan blows on the side of the sticker
Label end of the wire: 1

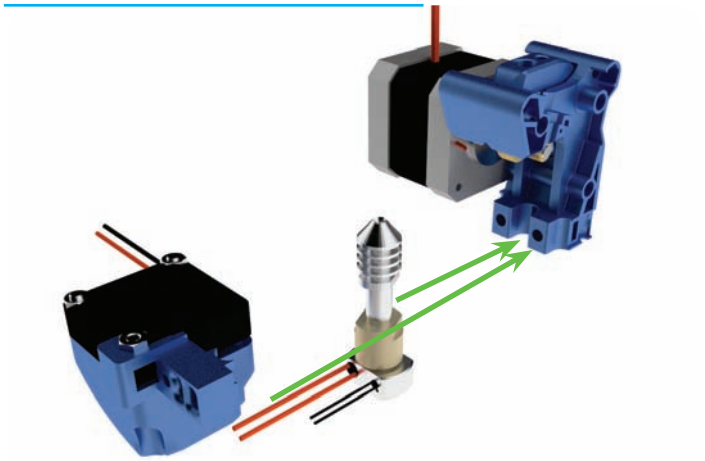
60ᴬ 3x Thin nut M4
3x Bolt M4x20





Make sure the sticker from the fan is on the bottom.
The fan blows on the side of the sticker
Label end of the wire: 1

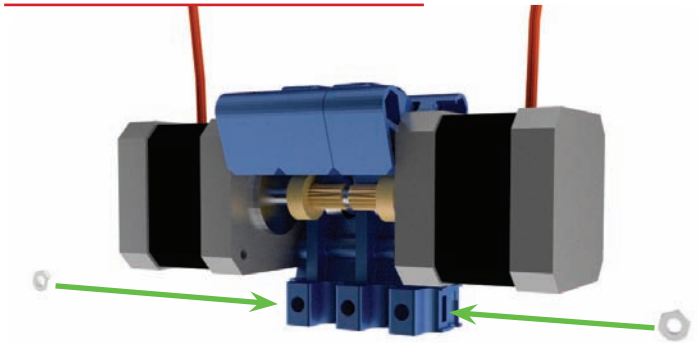
61



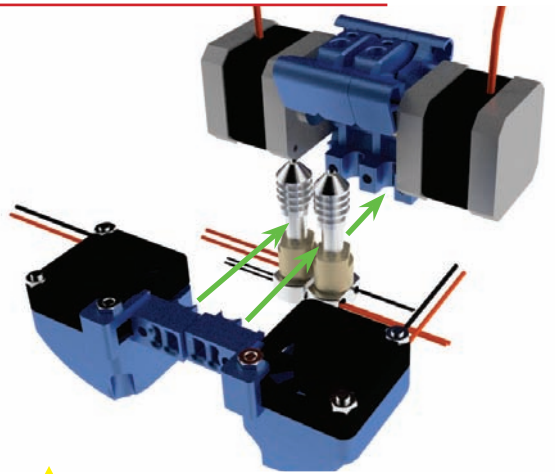
Label end of the hot-endcable: 0

61A

2x Thin nut M4



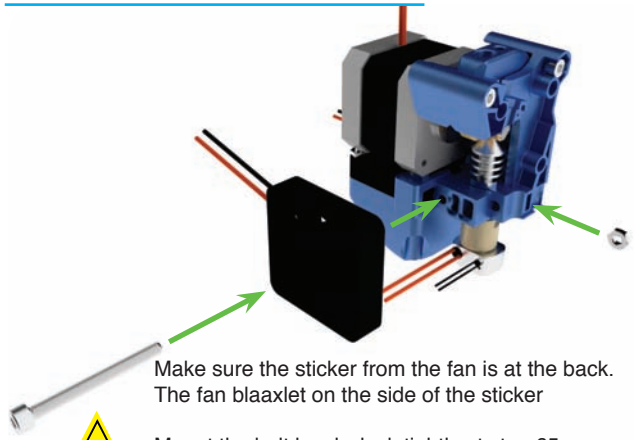
61b



Label end of the hot-endcable: 1

62

1x Small nut M4
1x Bolt M4x40



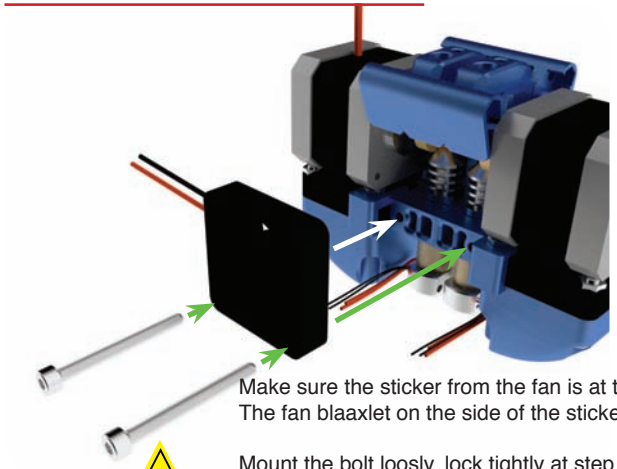
Make sure the sticker from the fan is at the back.
The fan blaaxlet on the side of the sticker

Mount the bolt loosly, lock tightly at step 65.

Label end of the wire: 2

62A

2x Bolt M4x40

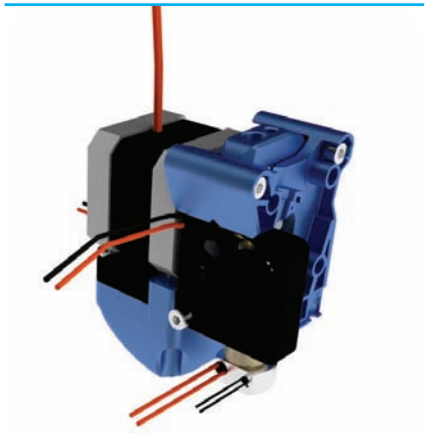


Make sure the sticker from the fan is at the back.
The fan blaaxlet on the side of the sticker

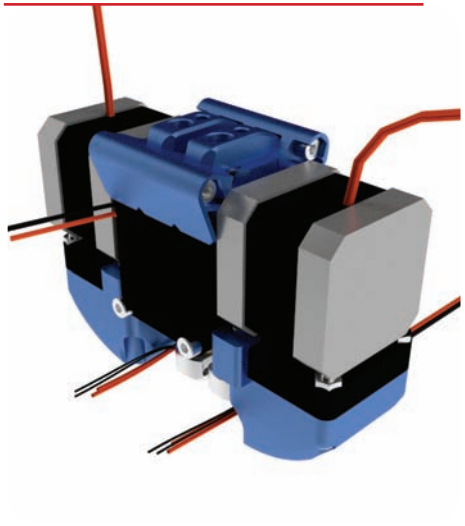
Mount the bolt loosly, lock tightly at step 65.

Label end of the wire: 2

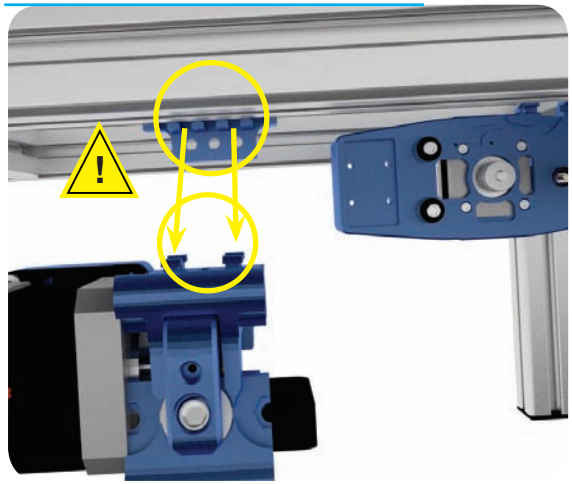
63



63A

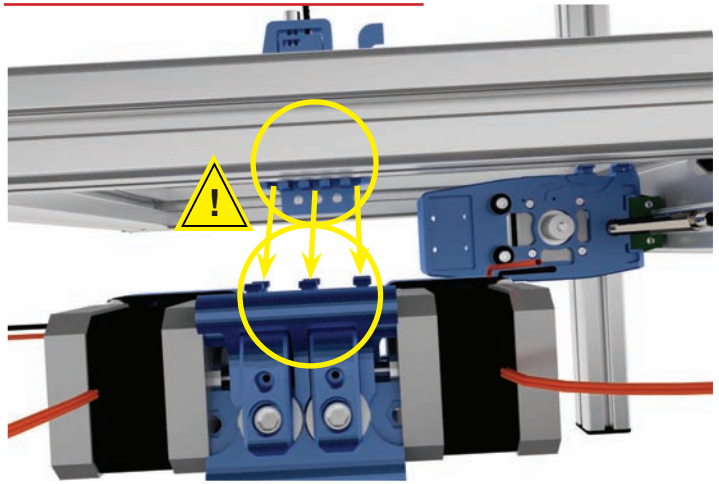


64



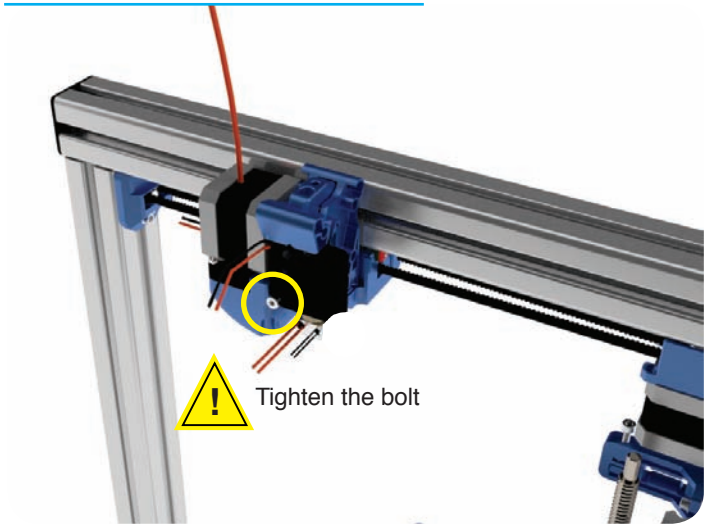
Align the printhead on the carrier

64A

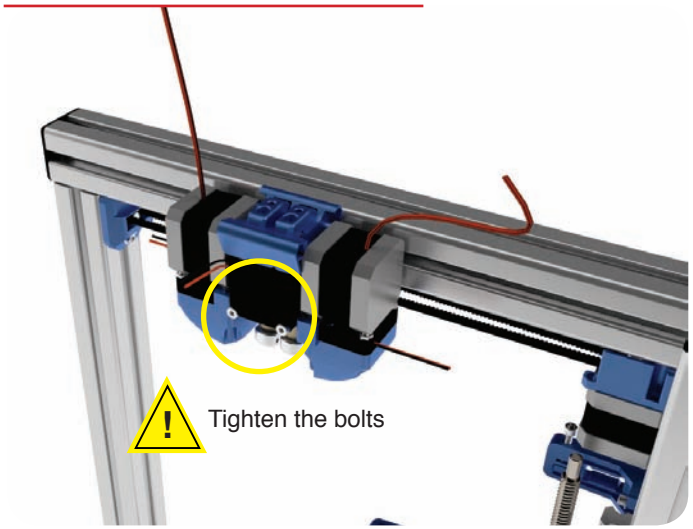


Align the printhead on the carrier

65

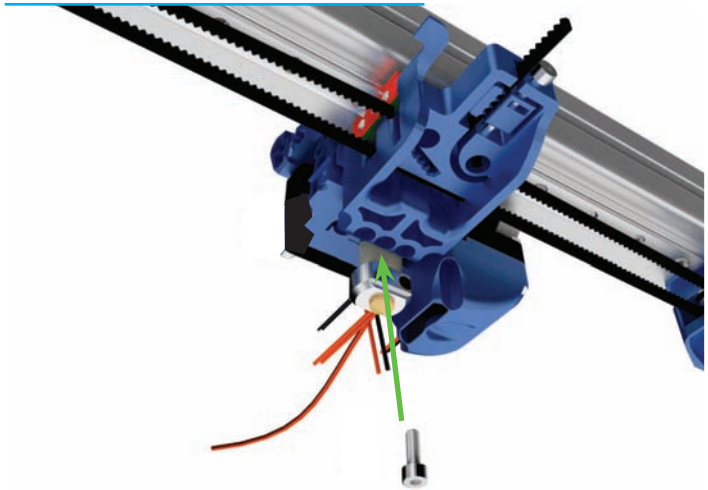


65A

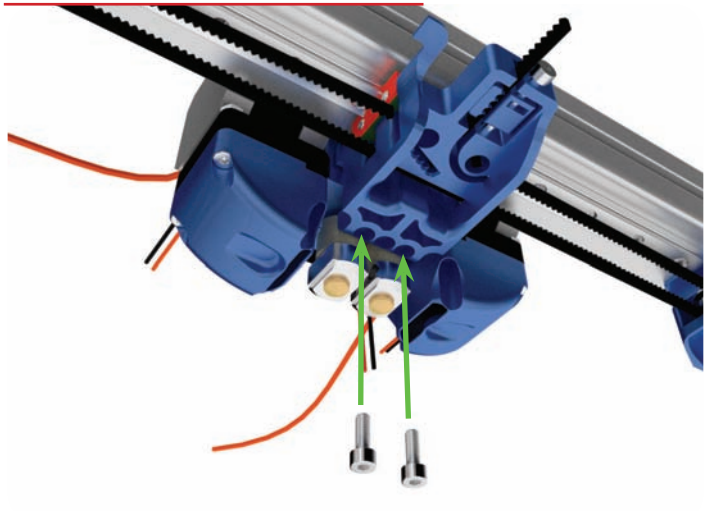


66

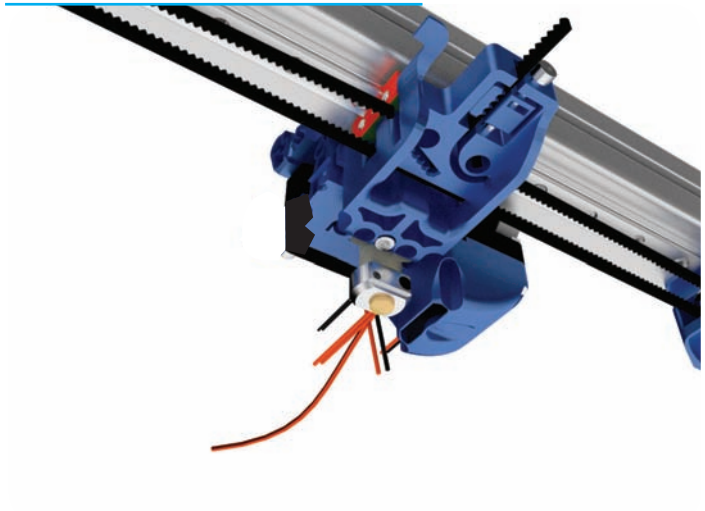
2x Bolt M4x12



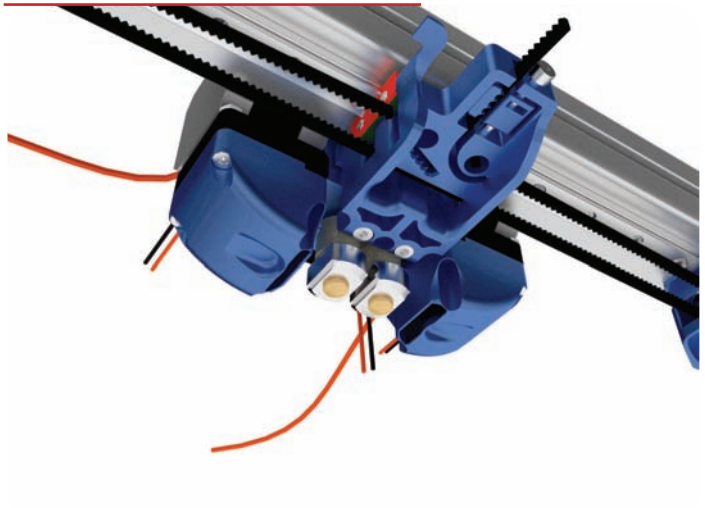
66A 2x Bolt M4x12



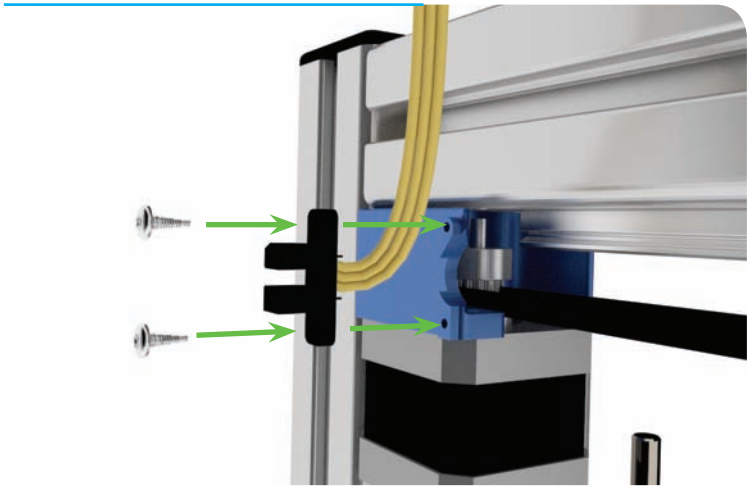
67



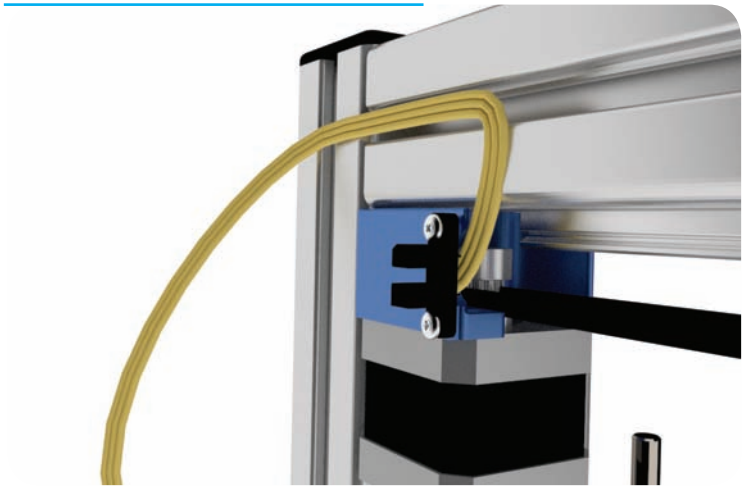
67A



68 2x Small screw 2,2 x 9
Opto sensor



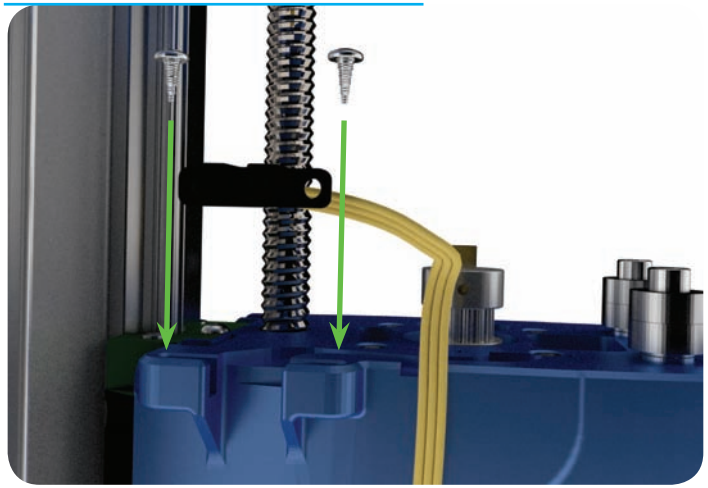
69



Label end of the wire: X

70

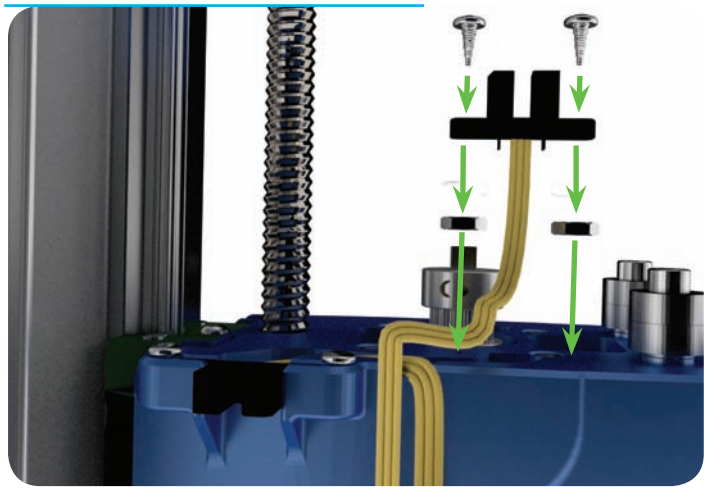
2x Small screw 2,2 x 9
Opto sensor



Label end of the wire: Z

71

2x Small screw 2,2 x 9
2x Thin nut M4
Opto sensor

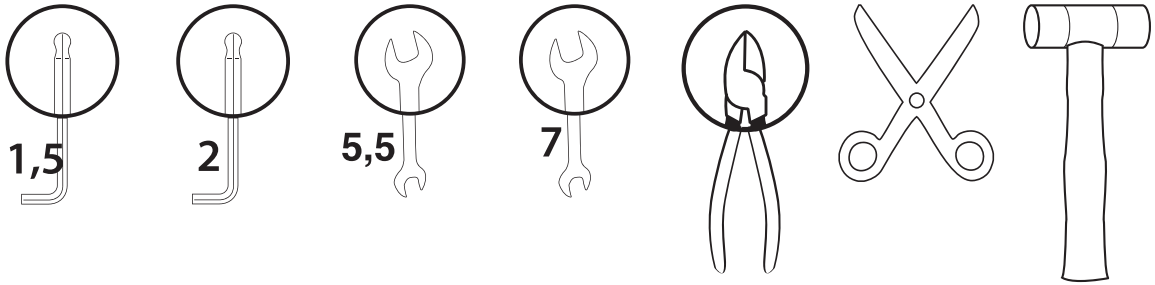


Label end of the wire: Y

72

The extruder is finished.

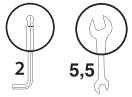
Tools:



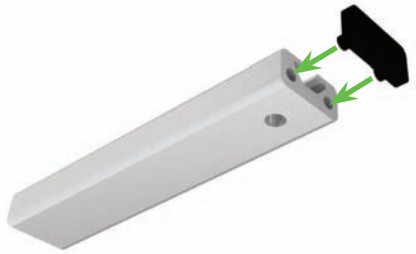
73

4x Bolt M3x16
4x Smal washer M3
4x Self locking nut M3

74



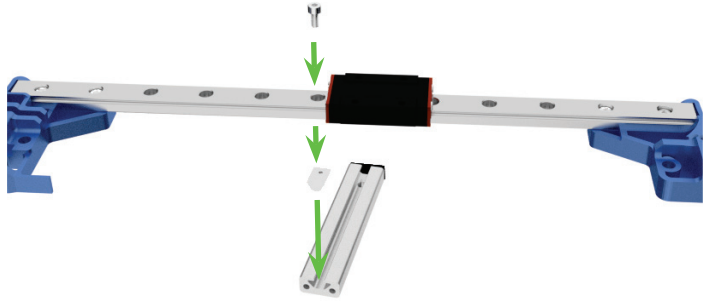
75



76

77

1x Bolt M3x8
1x Small t-slot M3

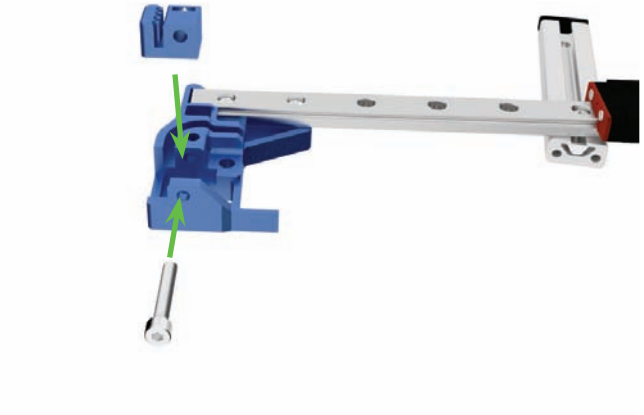


78

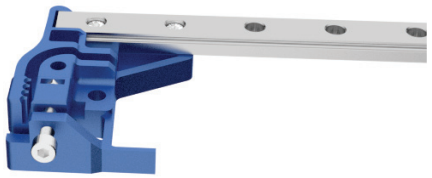
1x Thin nut M4

79

1x Bolt M4x25



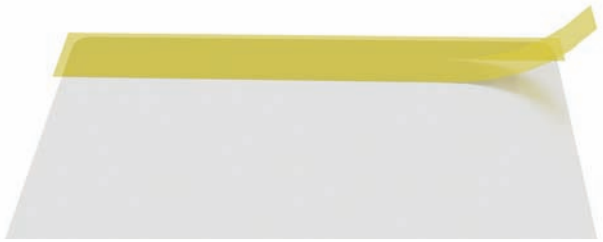
80



81

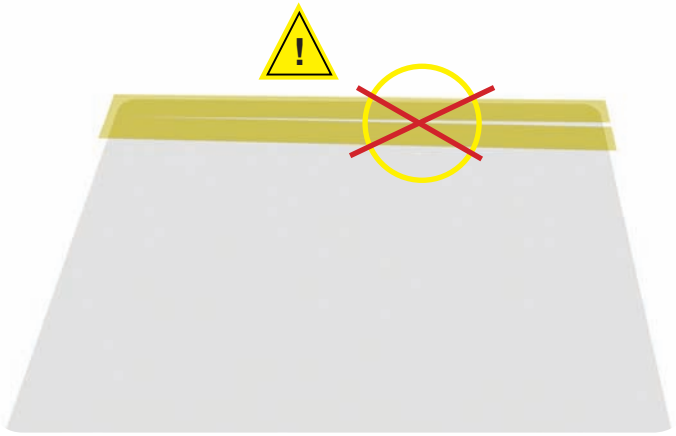
Kapton-tape

82

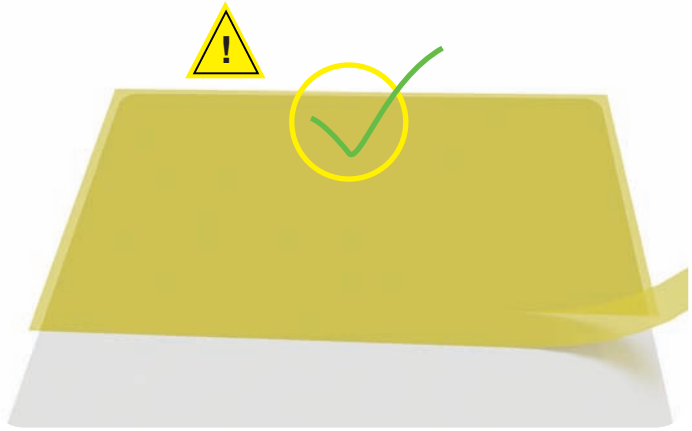


Repeat this step until the upper side of the bed is completely plastered.

83



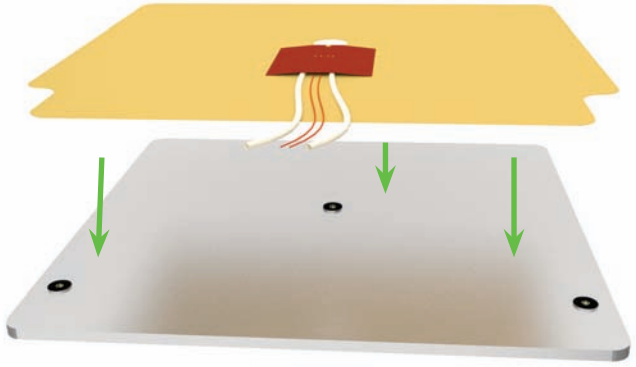
84



85

Turn the bed

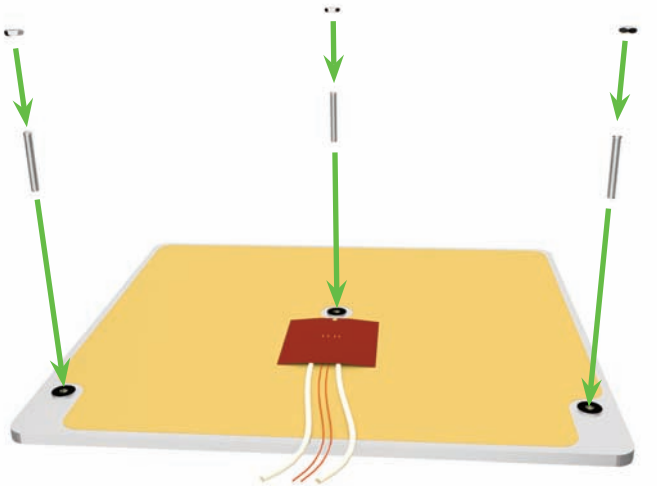
86



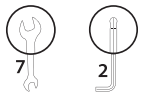
87

88

3x Set screw M4x30
3x Thin nut M4



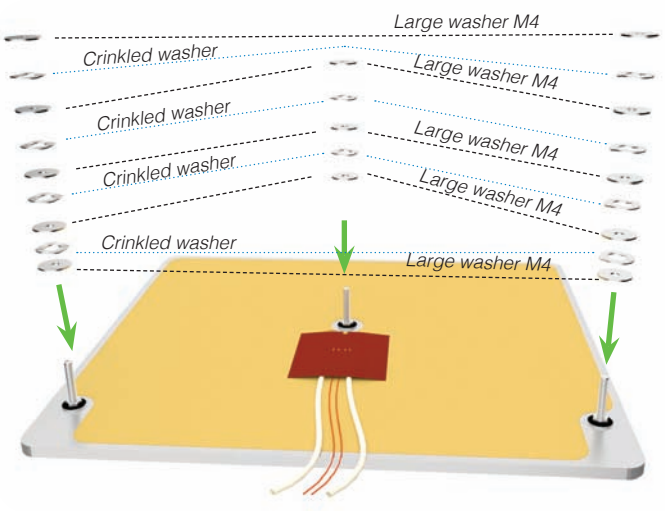
89



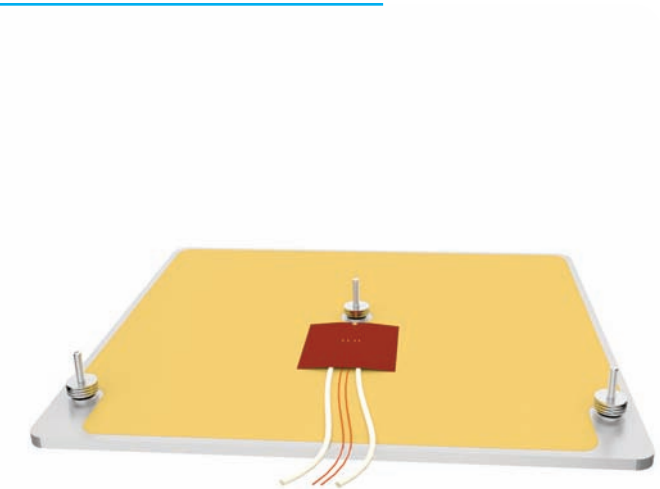
keep the setscrew 0,5mm free of the plate

90

13x Large washer M4
10x Crinkled washer

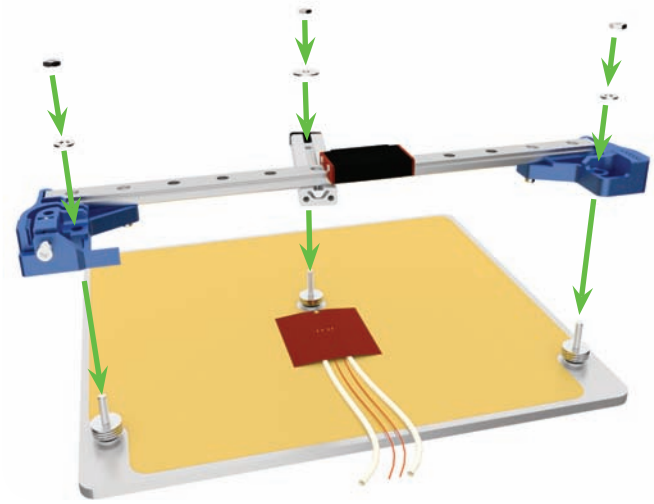


91

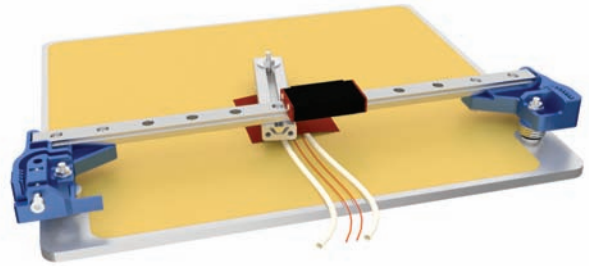


92

1x Large washer M4
2x Small washer M4
3x Thin nut M4



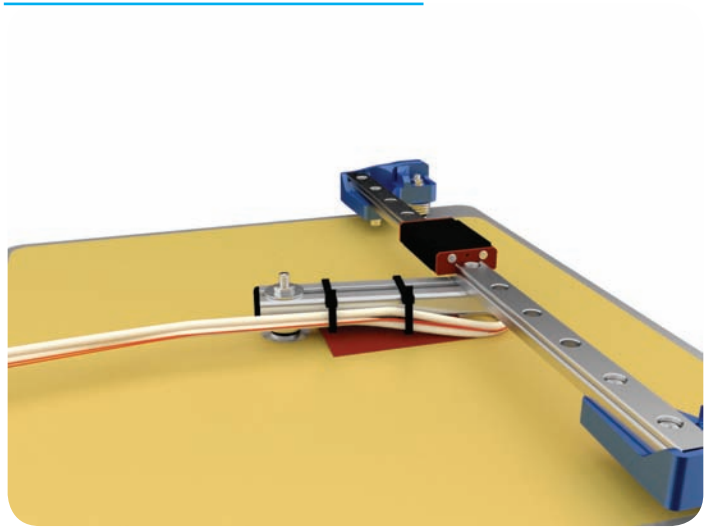
93



Tighten the nuts, not fixed,
it must be able to suspens.

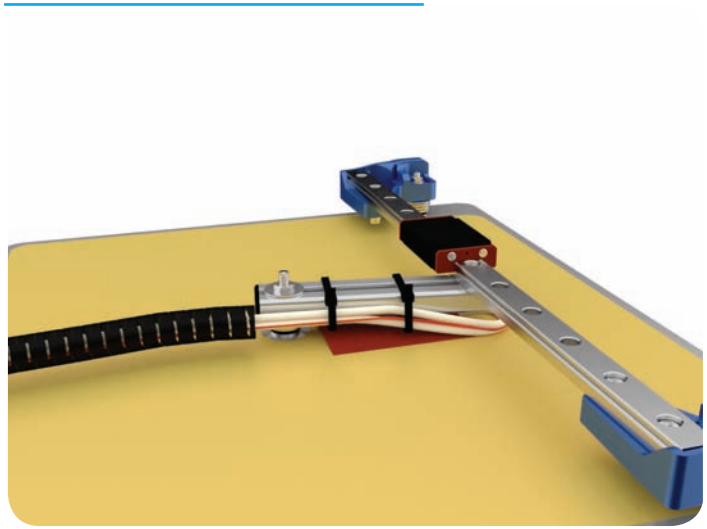
94

2x tie-wrap



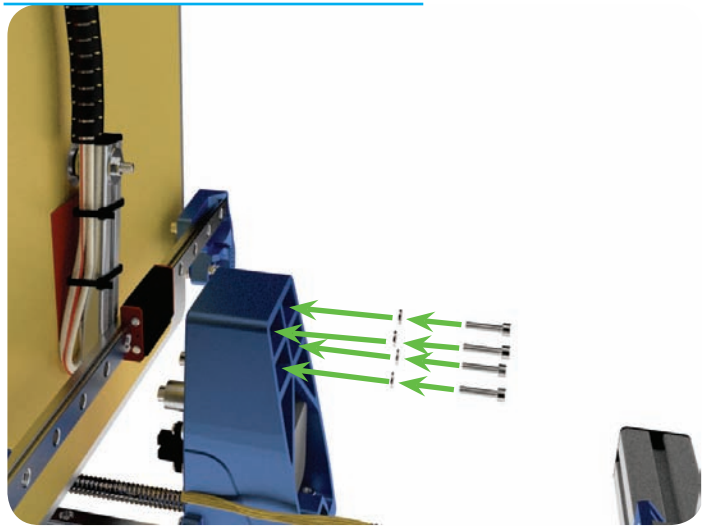
95

1x 25 cm Cable spiral



96

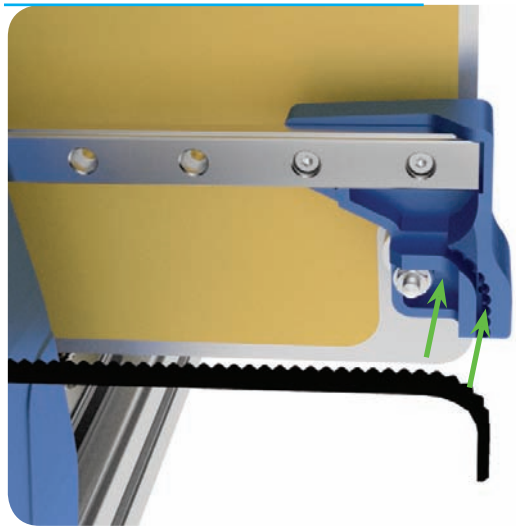
4x Bolt M3x16
4x Small washer M3



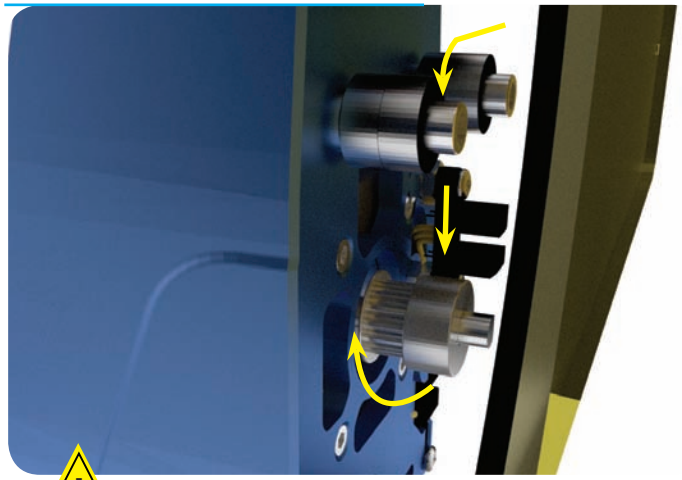
97

98

Belt

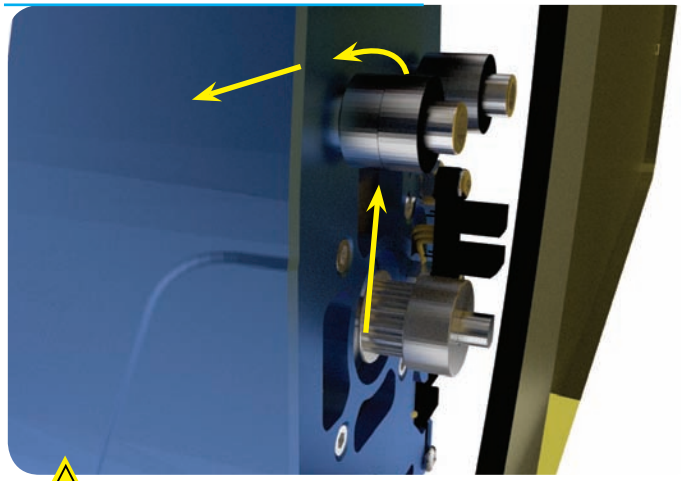


99



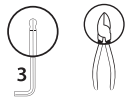
Mount the belt, acourding to the arrows.

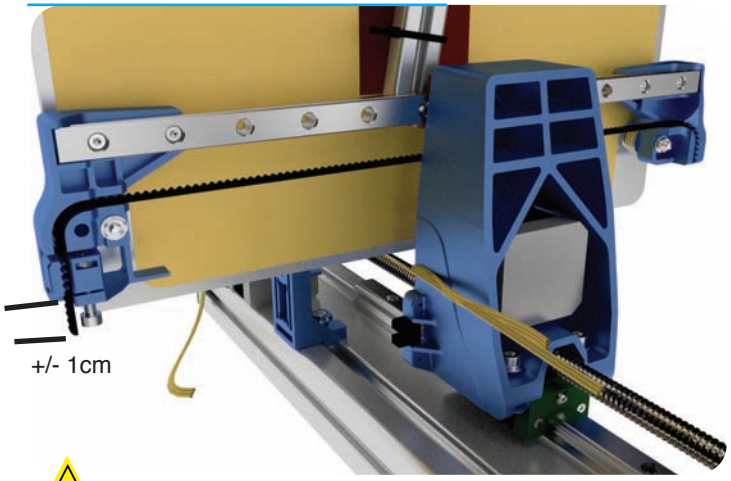
100



Mount the belt, acourding to the arrows.

101

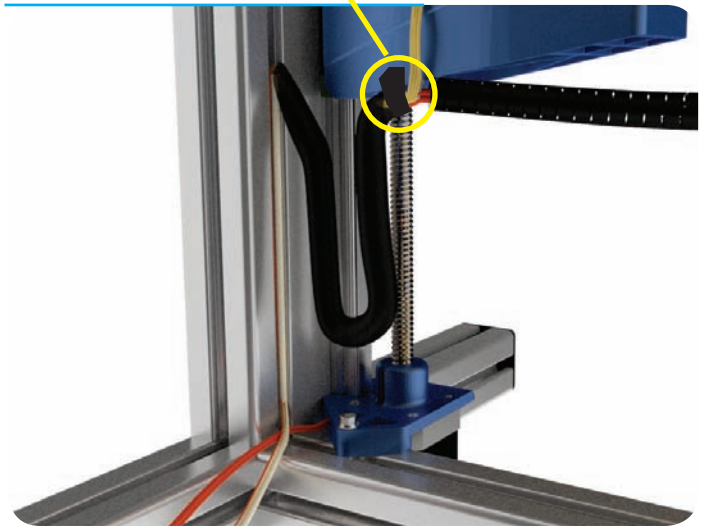




Belt should be taut, but sled must run free.

102

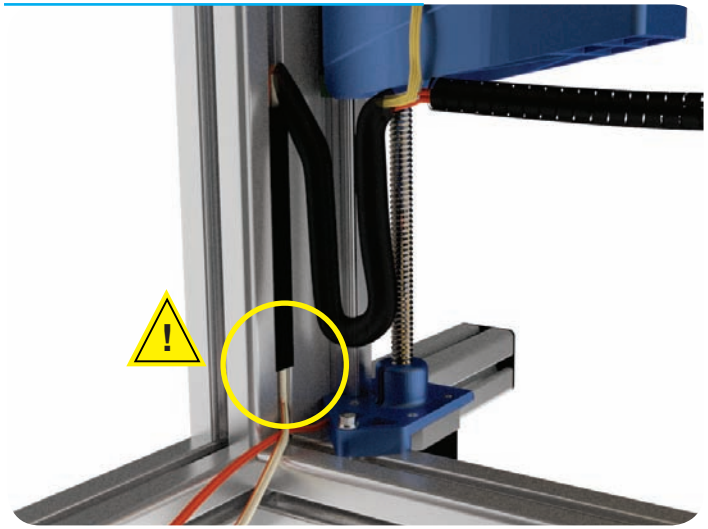
1x 25 cm Cable spiral
1x Clamp + tierap



103

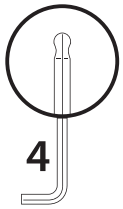
1x 13 cm Plastic U-profile

Ends of the plastic strip must cut slantwise.



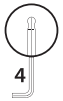
The y-axle and the printbed are finished.

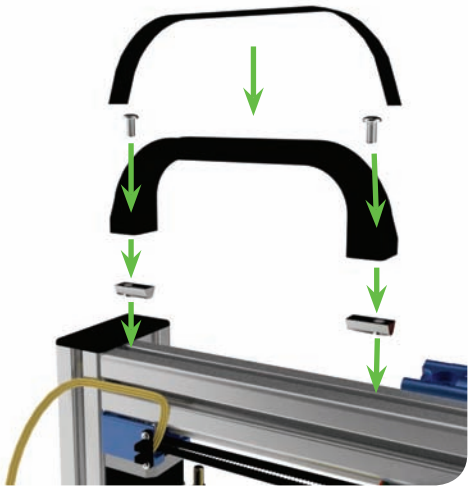
Tools:



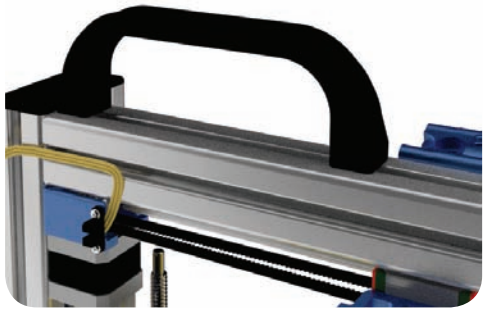
104

2x T-slot M5
1x Handle
2x Bolt M5x12
1x Handle-cap



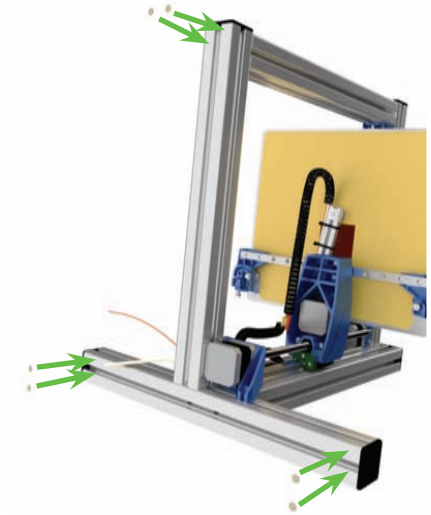


105



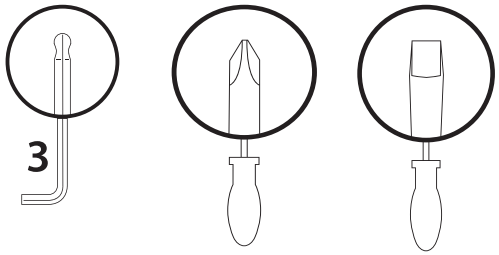
106

6x Demping feet

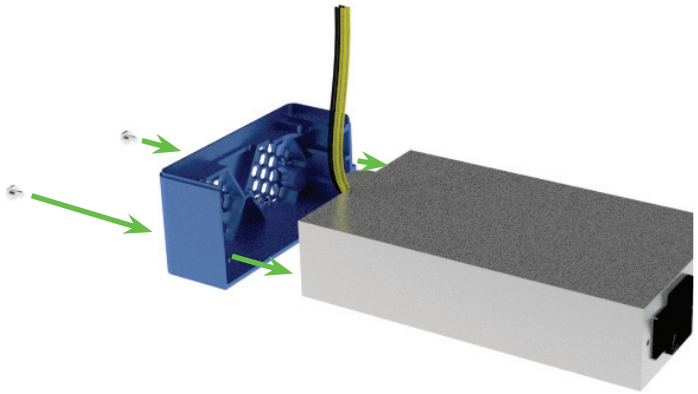


The handle is finished.

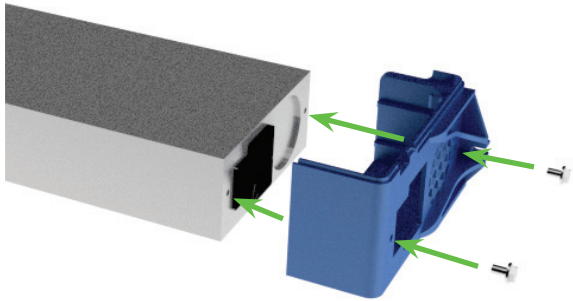
Tools:



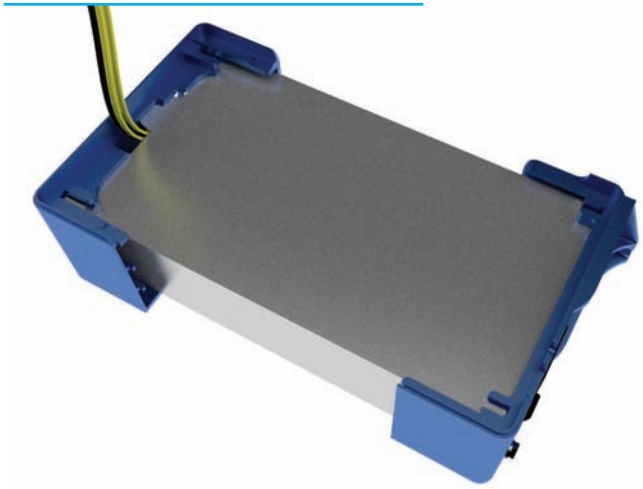
107 2x Powersuppleyscrew



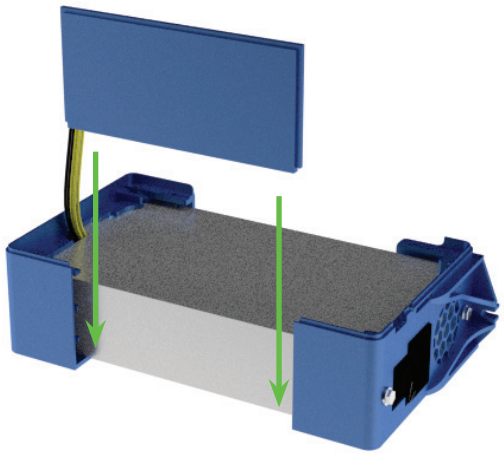
108 2x Powersuppleyscrew



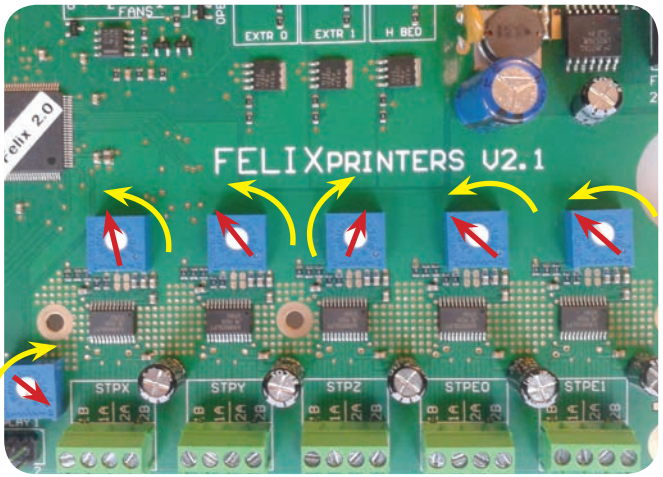
109



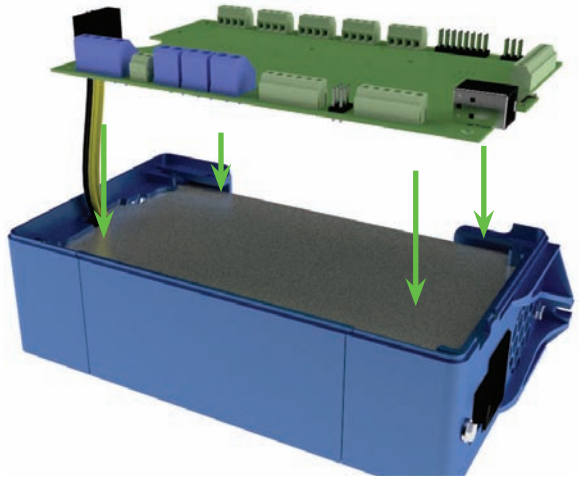
110



111

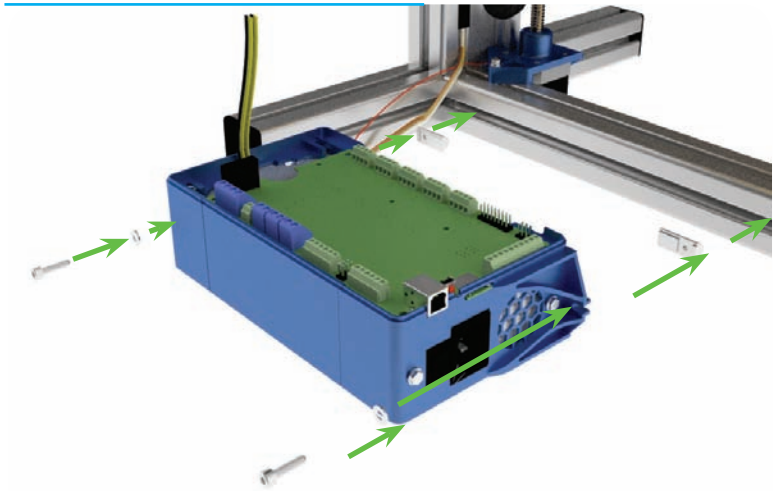


112

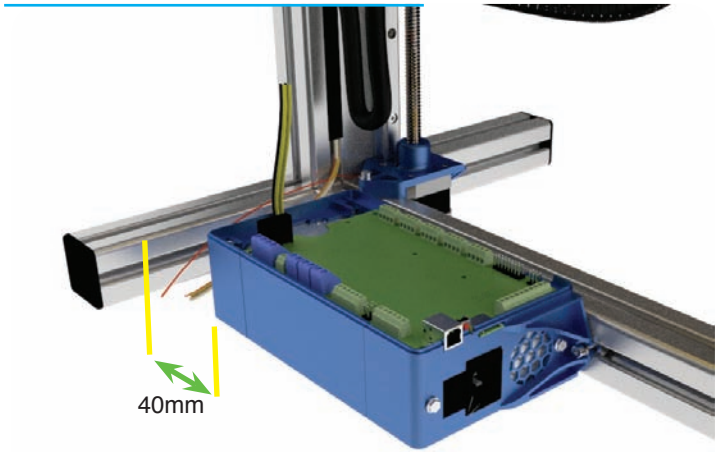


113

2x Bolt M4x12
2x Small washer M4
2x T-slot M4

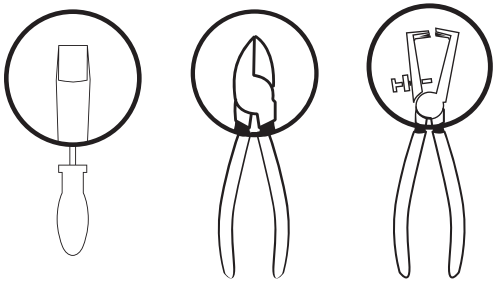


114



The electronicabox is finished.

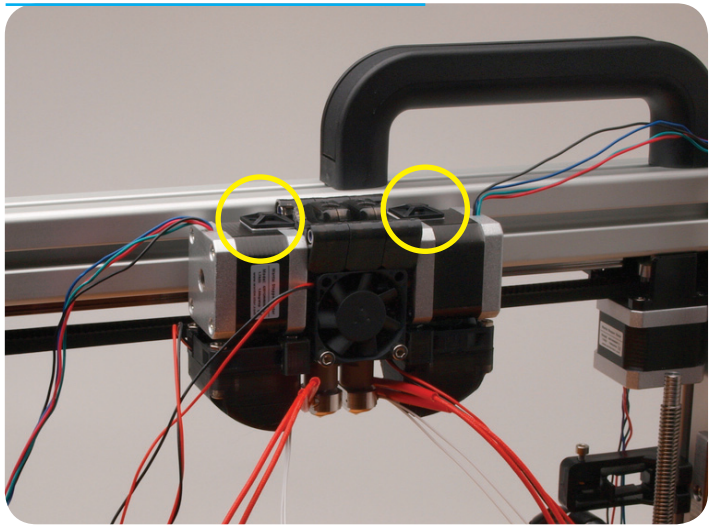
Tools:



Next steps are made on the basis of the double-extruder.
For a single extruder you only need to connect the existing cables.

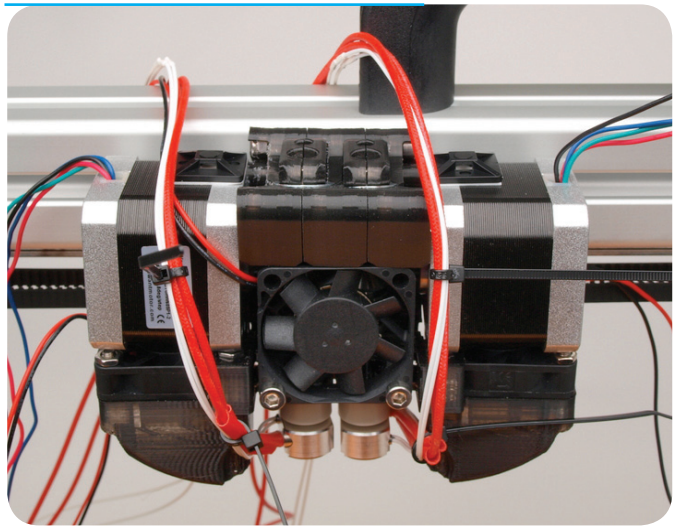
115

1x cable tie sticker
2x cable tie sticker



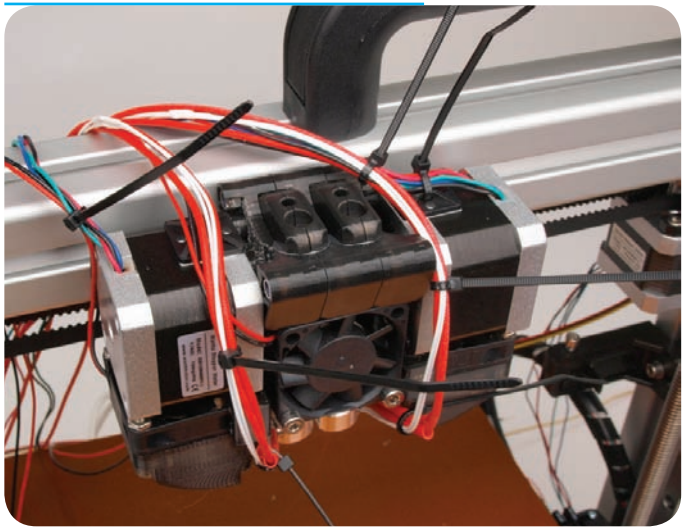
116

1x cable tie
2x cable tie



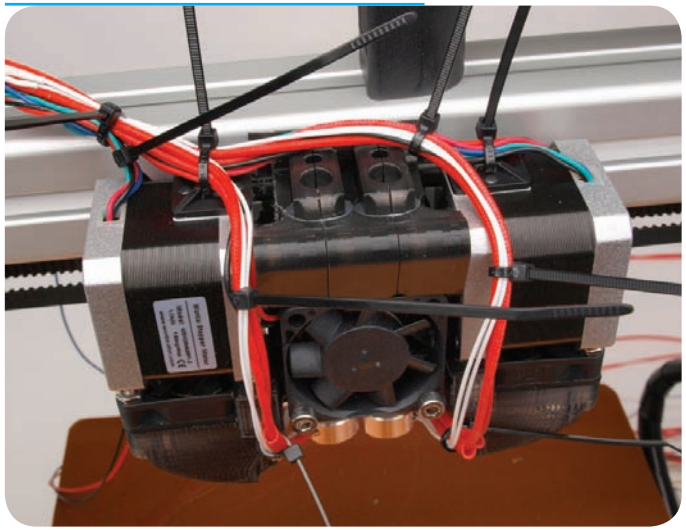
117

1x cable tie
2x cable tie



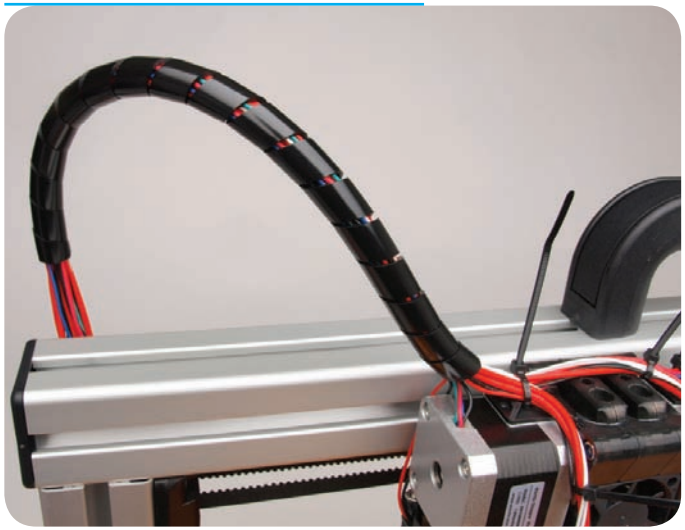
118

2x cable ties
4x cable tie



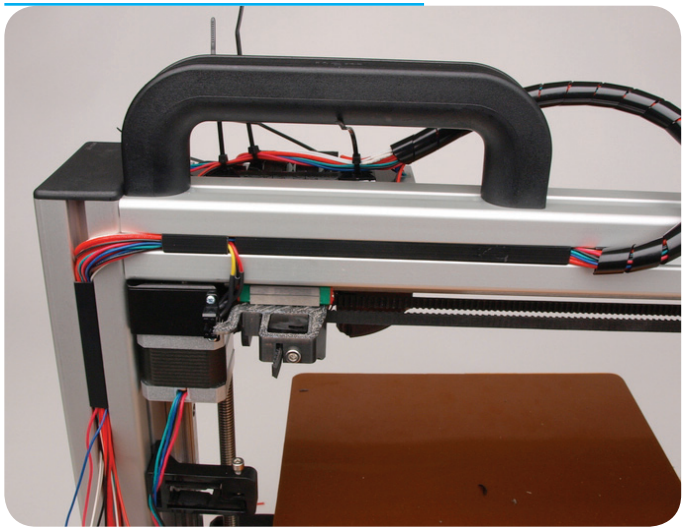
119

25cm cable spiral



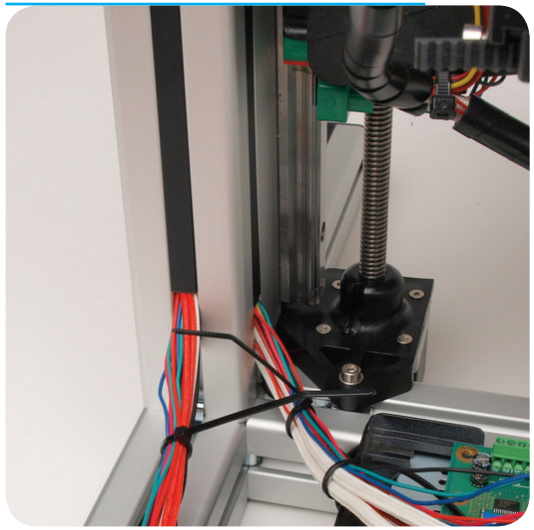
120

1x 15cm strip
1x 2cm strip
1x 6 cm strip



121

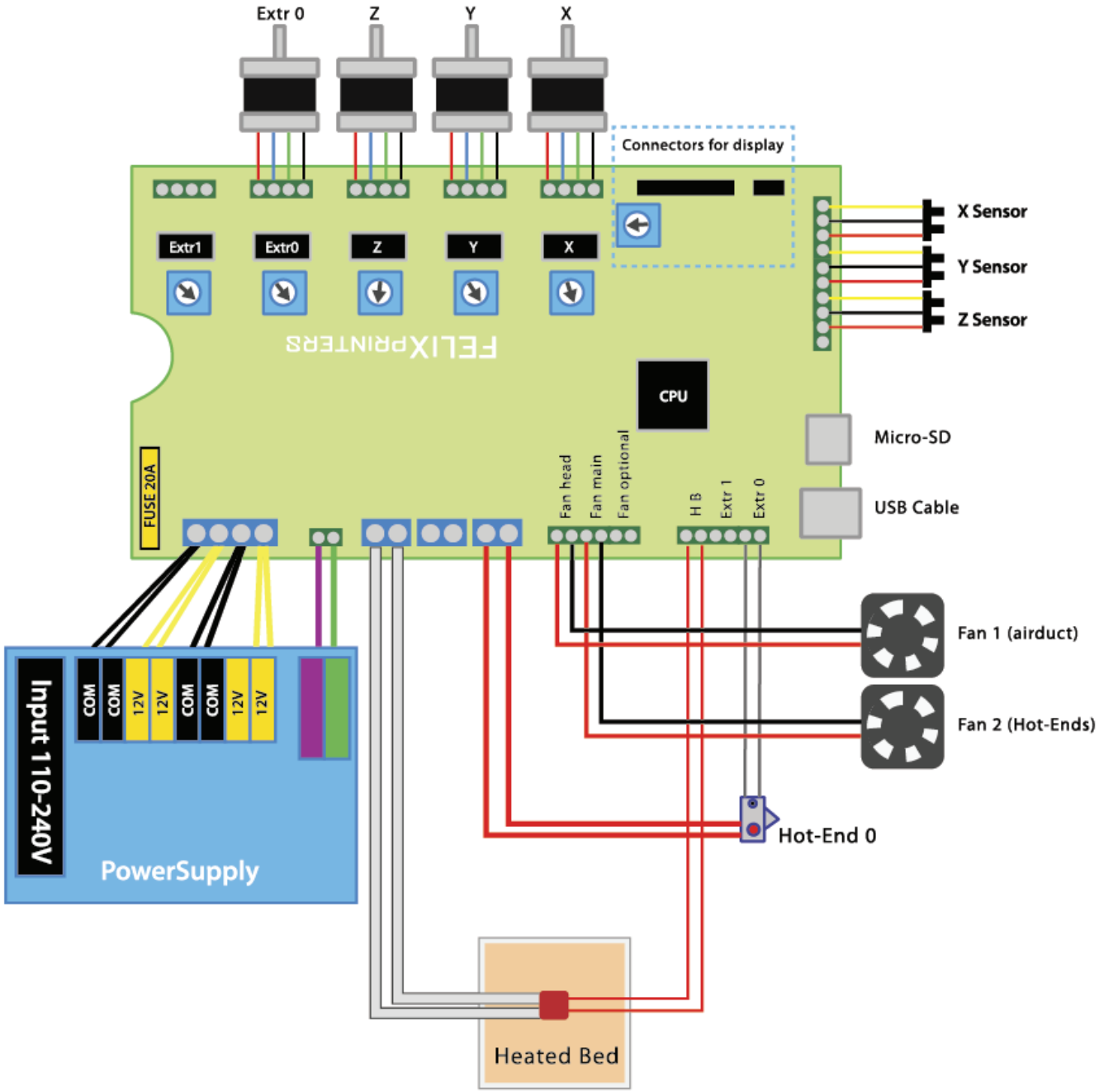
1x 28cm strip
4x cable ties



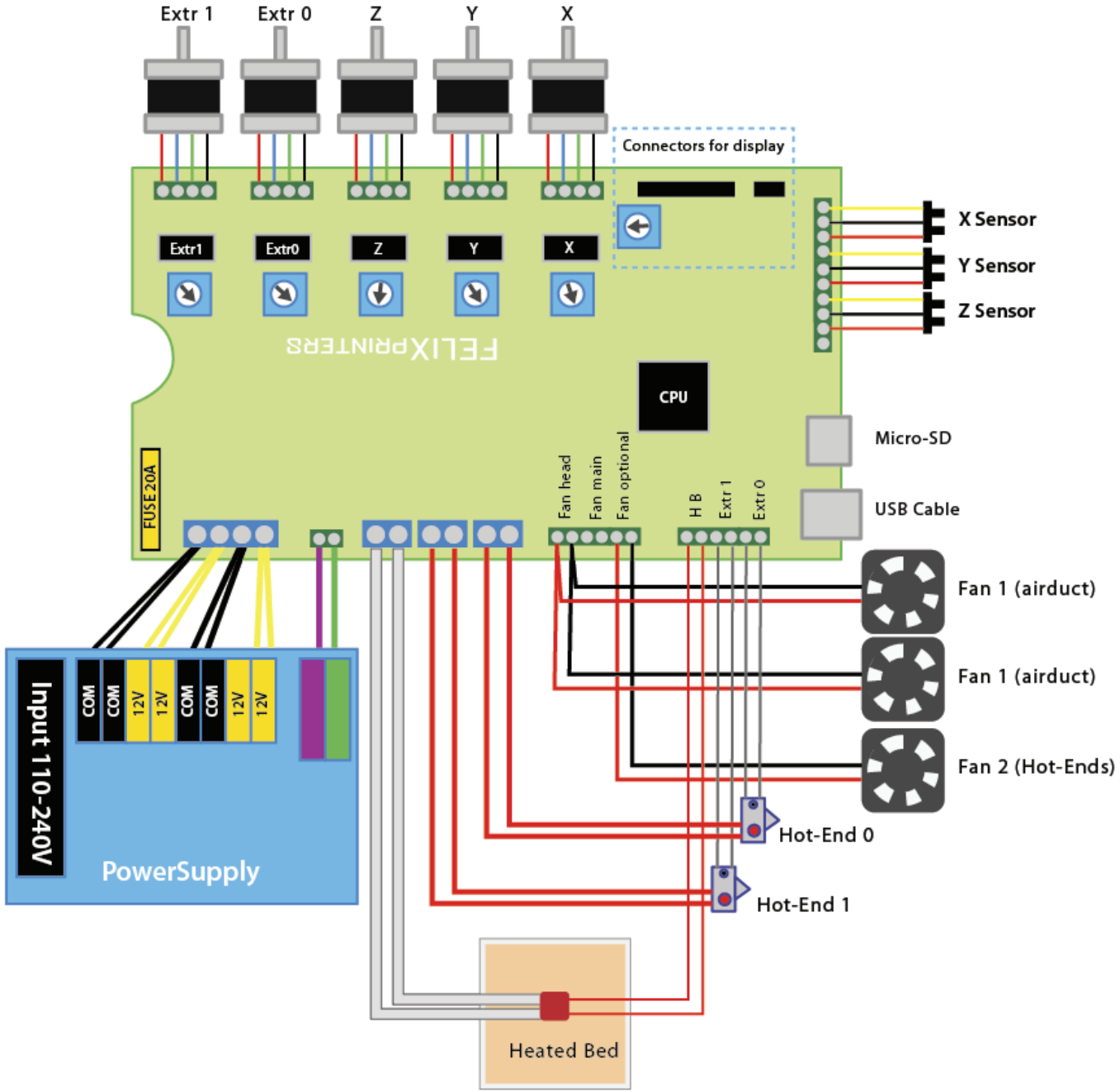
The following steps are to connect the cables to the electronic-board.

! ATTENTION! The electronics are sensitive to static electricity! !

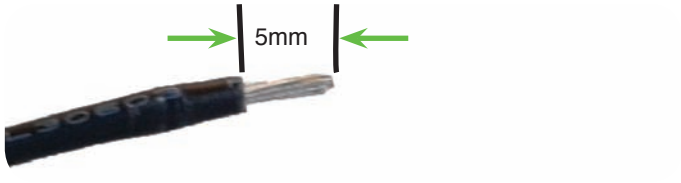
Wiring diagram for the single extruder.

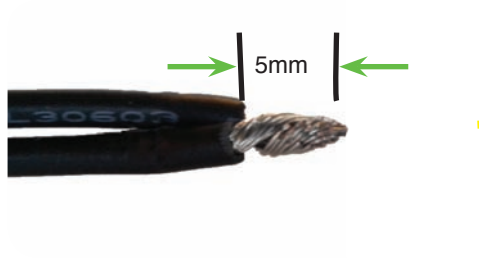


Wiring diagram for the dual extruder.

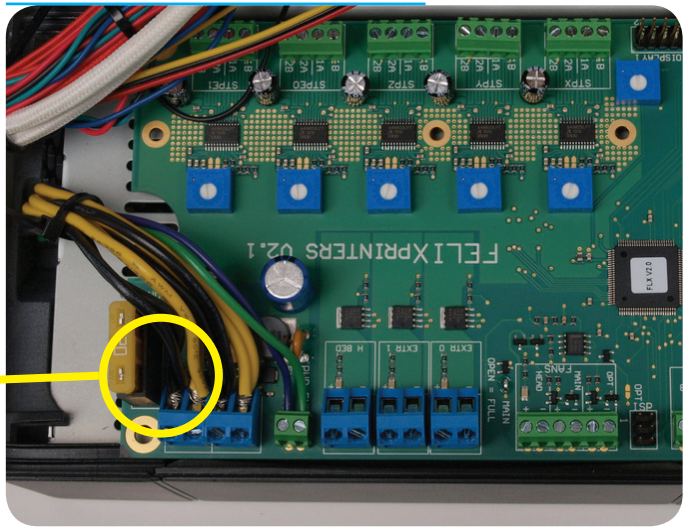


Strip the ends of the cable

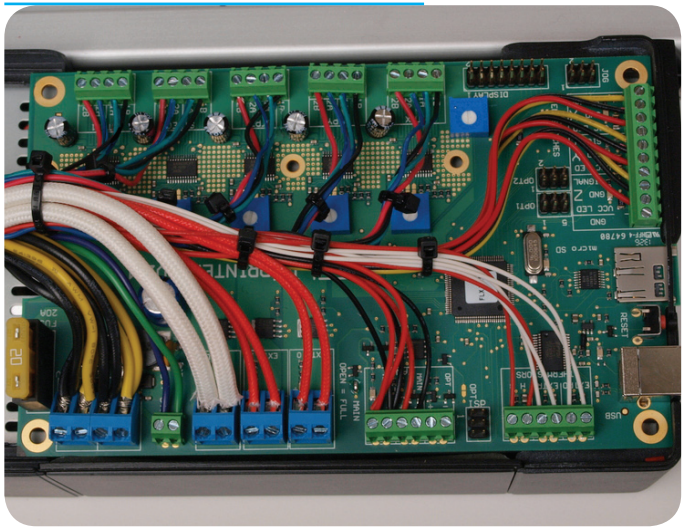




122



123

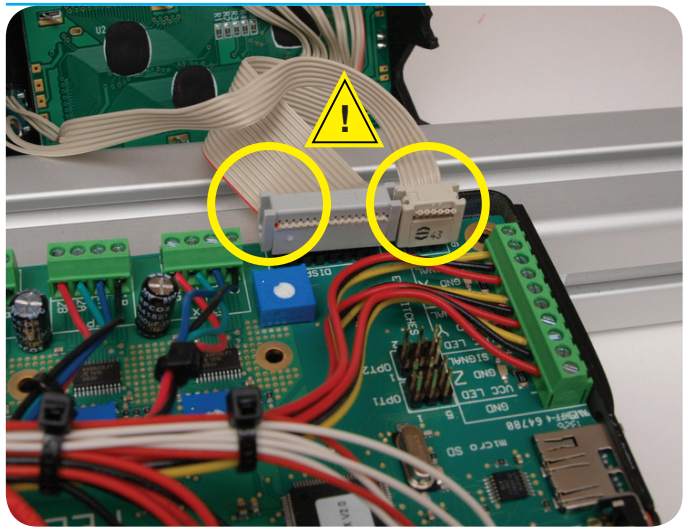


124

1x 15 cm Cable spiral

125

Connecting the display cables



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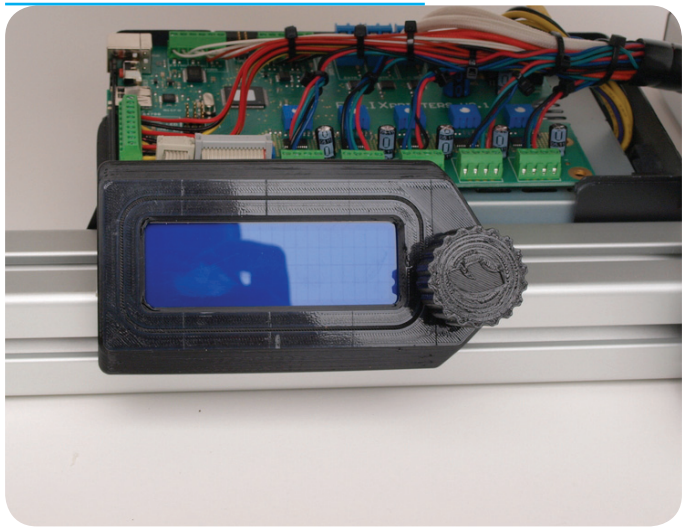
Attach the display module to the frame



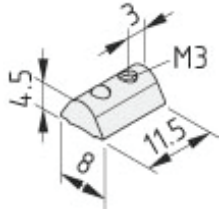
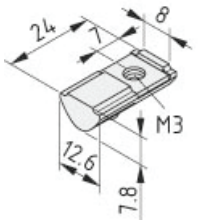
Attach the cover
4x Bolt M4x12

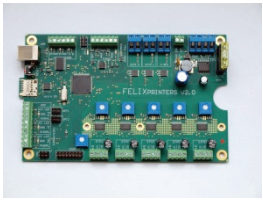
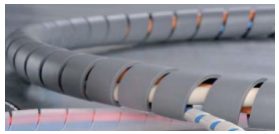
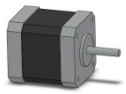
Congratulations you are finished with the assembly of the printer.

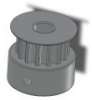
Please continue with the user manual.

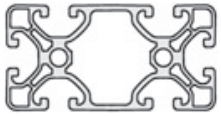
BOM (Bill of Materials)

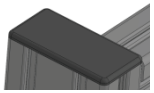
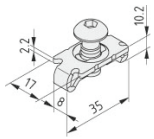
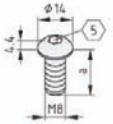
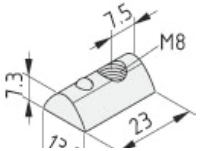
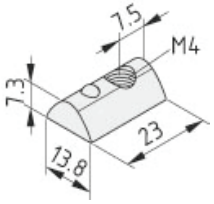
Prod. Nr.	Description		Image
105 018.0	**Bolts & Nuts set FELIX 3.0**		
140 036.0	Set screw D-916 – M3 x 4	6	
140 036.0	Set screw D-916 - M4 x 30	4	
140 012.0	Bolt D-7991 - M3 x 6 --- 6N - CSK	5	
140 013.0	Bolt D-7991 - M3 x 8 --- 8N - CSK	15	
140 015.0	Hexagon socket head cap screw DIN 912 - M3 x 8	2	
140 016.0	Hexagon socket head cap screw DIN 912 - M3 x 12	3	
140 017.0	Hexagon socket head cap screw DIN 912 - M3 x 16	18	
140 018.0	Hexagon socket head cap screw DIN 912 – M4 x 12	8	
140 019.0	Hexagon socket head cap screw DIN 912 – M4 x 16	4	
140 020.0	Hexagon socket head cap screw DIN 912 – M4 x 20	15	
140 021.0	Hexagon socket head cap screw DIN 912 – M4 x 25	6	
140 022.0	Hexagon socket head cap screw DIN 912 – M4 x 40	4	
140 023.0	Hexagon socket head cap screw DIN 912 – M5 x 16	5	

140 024.0	WasherD- 125A M3	10	
140 025.0	WasherD- 125A M4	22	
140 026.0	WasherD- 125A M4	5	
140 027.0	Crinkeled washer	22	
140 028.0	Corrosserie ring - M4 - large washer	30	
140 029.0	Prevailing torque type hexagon nut DIN-985 - M3	6	
140 030.0	Hexagon Thin Nut D-439B – M4	35	
140 031.0	Prevailing torque type hexagon nut DIN 985 0 M4	8	
140 032.0	Powersupply screw UNC 6/32 x ¼ Pozi steel	5	
140 033.0	Penhead screw D-7981c 2,2 x 13 Phillips A2	8	
110 020.0	t_slot nut – 5 ST M3	2	
110 21.0	t_slot nut – 8 ST M3	3	

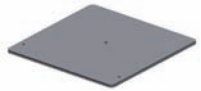
150 014.1	Electronics 1, F3_0		
150 014.0	Thermistor incl 2m	1	
150 011.0	Electronics board - Felixprinters	1	
150 025.0	Fan 40x40x10 with 1.5m wires, Sunon	2	
150 023.0	Opto sensor_v2	3	
170 013.0	cable ties, set of 100	1	
170 014.0	cable spiral 1.25m	1	
170 021.0	Cable ties for mounting cables on z bracket	2	
170 022.0	cable tie stickers on extruder motor	4	
105 015.0	Electronics 2 (motors)		
150 026.0	motor nema 17	4	

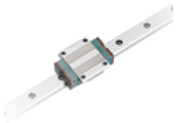
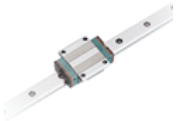
105 013.1	Mechanics, F3_0		
130 013.0	pulley_motor_HTD	2	
130 014.0	Toothbelt HTD 3M 1.2m	1	
130 015.0	Bearing 624 5x12x6	6	
130 016.0	extruder_insert_piece	1	
110 027.0 and 110 028.0	y-axis mid-table support 20x10_profile + protective cap	1	

105 011.0	Frame (A)		
110 012.0	40x40x400 profile incl 2xM8	1	
110 013.0	40x40x400 profile, incl 1xM8, 1xD7	2	
110 014.0	40x40x400 profile, incl 3xD7	1	
110 011.0	80x40x440 incl work	1	

105 012.0	Frame (B)		
110 015.0	40x40 protective caps	4	
110 016.0	80x40 protective caps	1	
110 017.0	frame connector set	6	
110 018.0	handle	1	
110 019.0	Protective cap, handle	1	
140 035.0	hex sockethead bolt M8x16 buttonhead	2	
110 024.0	t-slot nut - 8 ST M8	2	
110 022.0	t-slot nut - 8 ST M4	15	
110 025.0	dampning feet	6	

100 101.4	**Axlesembled Hot-end, containing:**	**1**	
130 019.4	Hot_End_baxlee_1_75mm_F2_0_V4	1	
130 021.4	Hot_End_peek_isolation_1_75__F2_0_v4	1	
130023.3	Hot_End_Heated_barrel_1_75_F2_0_v3	1	
130 024.1	Hot_End_tip_1_75_F2_0_v1	1	
150 013.0	Heater Cartidge incl 2m wires	1	
150 014.0	Thermistor incl 2m	1	

	Parts packed separately in DIY kit		
150 024.0	Powersupply - 1U- Enhanced electronics, with switch	1	
130.025.0	table_6mm_F3_0_v5	1	
130 017.0	Trapezium spindle TR10x2mm 330mm	1	
130 017.0	Trapezium hexagon nut TR10x2	1	
150 016.0	Kapton - Foil Heater	1	

130 011.0	Hiwin lineair ball bearing set – MGN12H1R0300Z1HM	2	
130 012.0	Hiwin lineair ball bearing set – HGW15CC1R300Z0	1	
110 026.0	strip for putting away cable pieces of 40 cm	3	

105 016.0	**Miscellaneous**		
150 018.0	USB cable 1.8m	1	
170 011.0	tweezers	1	
170 012.0	Kapton tape for heated bed	1	
170 016.0	Piece of filament to start 5m	1	
170 019.0	Piece of teflon tube 40cm	1	
170 020.0	Bearing 25x32x7, used for filament holder	2	
170 023.0	Filament dust cleaner	2	

	Optional parts depending on region		
150 019.0	Power Cable EU	1	
150 020.0	Power Cable USA	1	

150 021.0	Power Cable AU	1	
150 022.0	Power Cable UK	1	

100 074.0	**Upgrade kit single to dual head F3.0**		
170 019.0	piece of tefon tube 50cm	1	
110 026.0	strip for putting away cable pieces of 40 cm	1	
100 101.4	Hot-end v4, axlesembled	1	
150 025.0	Fan 40x40x10 with 1.5m wires, Sunon	1	
150 027.0	Stepper motor nema 17, short motor, 1.5m wires, flat shaft	1	
130 016.0	extruder_insert_piece	1	
130 015.0	small bearing	1	
170 023.0	Filament dust cleaner	1	